EDITORIAL

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KEEP STANDARDS UP.

THAT the memory of good quality remains long after the price is forgotten, is a pretty well established fact. The man who buys a hat, a suit of clothes, or anything else which gives him particularly good service soon forgets what he paid for it, or, if he does not entirely forget the price, becomes more and more convinced that he made an especially good purchase and is certain to go back to the man or firm where the purchase was made. On the other hand if he does not get good service from the hat or suit or whatever it may be, he becomes thoroughly dissatisfied and at the same time forgets that he obtained the article in the first place for a price at which he had no right to expect anything better.

Because of the fact that it is often much easier to sell a low-priced, mediocre article than one of real quality but with a somewhat higher price, many sell the cheaper article because they follow the line of least resistance. They would like the larger profit on the higher priced article, but haven't the ambition, initiative or courage to fight for it. They either do not know, or knowing utterly disregard the fact that what they are supposed to sell is satisfaction, not for the moment, but for an extended period. By selling at a real low price the purchaser has the momentary satisfaction of immediate economy, but he soon becomes dissatisfied and learns that what at the time appeared to be economy is really gross wastefulness. A poor article is never cheap regardless of the price.

The big demand which has existed for several years and which is still in evidence for low-priced residences and apartment buildings has had a tendency in some cases to lower standards considerably. In fact in a number of cities there have been important revisions of the building codes in order to permit of cheaper construction. This is not in the interest of either the builder, the owner, the contractor, or the city itself. Lax codes which permit of indifferent workmanship and poor material in plumbing, heating and ventilating installations are simply a license to endanger the health of the occupants of the structures made possible by them, and a license to endanger the health of the rest of the community as well. Of course the biggest percentage of the plumbing and heating contractors have not taken advantage of the temporary lowering of standards nor will they, for they know that an unsatisfactory job, like the proverbial cat, will come back, and will cause trouble and expense later on.

All contractors desire a reputation for high grade work, dependability, and honorable dealings, but there is really only one way to get such a reputation and that is through earning it, through refusing to take work at a price that means either "skinning" the job or taking a loss. It means that the contractor will have to display some real salesmanship at times when dealing with people who are able to pay, but who make every effort to beat down a price, whether or not they know it to be fair. It requires real salesmanship and also a little more time to build a business on such a foundation, but it is the only sound basis on which to build a substantial, lasting and prosperous business. Anything that is worth having is worth fighting for, and the contractor who holds to his standards even though many temptations to lower them are thrown in his way by unscrupulous competitors or lax building and plumbing codes will eventually secure the fitting reward of substantial, profitable business, and the respect of his fellow contractors, his customers and the public at large.

DEVELOP INDUSTRIAL PLUMBING.

"THE plumbing we are doing in industrial plants is the best and most modern that we know how to install," said a prominent plumbing contractor recently when asked what kind of sanitary equipment was being used by factories and other industrial plants. He further maintained that there are a great many factory heads today who are ready to listen to the plumbing contractor who will show them why they should install modern sanitary equipments. The contractor who will show them that modern plumbing will result in healthier and better satisfied and therefore more efficient employes has an opportunity to develop a great deal of profitable business in industrial buildings. It requires salesmanship but is worth going after.

Tests are to be applied to workmen under the direction of the National Committee on Labor Efficiency and Production in order to determine their efficiency in various industries. Building will be the first industry taken up. Possibly after it is learned just what labor's efficiency is, some way will be found to increase it.

TWENTY-THREE YEARS *of* SUCCESSFUL MERCHANDISING

How a Master Plumber of New Orleans Rose from a Poor Boy Without Special Training to Be the Directing Head and Owner of a Most Prosperous Plumbing and Electrical Business Through Good Salesmanship, Sound Business Methods and a Determination Not to Take a Job Cheap, Just to Have a Job

By T. E. Dabney

S. B. Stewart.

HUNDREDS of people in the store, hundreds of people inspecting the beautifully arranged display rooms, hundreds of people exclaiming enthusiastically at the courtesy and hospitality of the owner of the business, yet not a single order taken all day. Was the proprietor who had invested so much time and money and originality on a program for the day that didn't net a single dollar discouraged? Hardly, for while he had made no sales on that day, he had passed up any number of chances, and he knew that everyone of them would be back in the near future. For on this day, S. B. Stewart of New Orleans wasn't making money, he was just making friends and strengthening old friendships.

From a "Hole in the Wall" to a 75-ft. Wide Store.

But the story of S. B. Stewart's rise in the plumbing and heating business in the city of New Orleans doesn't include many days without a single sale, for it was on his merchandising ability that he built the foundation of the store, that now, on its twenty-third birthday, invited all New Orleans to come as guests, with nothing offered for sale.

From a hole in the wall about 10 feet wide to a store frontage 75 feet wide; from two employes to 20; from a stock of $600 to a stock of $45,000; from a business of $8,000 a year to $100,000; from comparative poverty to a place among leaders of the South—this is the story of the career of S. B. Stewart, dealer in plumbing and electrical supplies at 210 Bourbon Street, New Orleans, with the best part of life still before him, for on his 23rd anniversary in business he was only 43 years old.

One of the interesting features of his growth is that Mr. Stewart never left his original location. He simply spread on each side. Fortunately, he chose the middle of the block, so he has opportunity to grow for some years to come, without tunnelling or bridging streets. And the chances are that before he celebrates the next anniversary he will have another expansion to announce.

S. B. Stewart, like so many boys of the South, came from a fine old family but hadn't a cent to his name. He quit school when he was 14 and found a job in a foundry, intending to learn that trade. But after a year or so, he realized his talents lay more in the commercial field, and he went back to school to take a commercial course. That completed, he entered the old plumbing establishment of L. Luderbach and learned the theory of plumbing work; but he specialized on salesmanship. In three years, he had saved, out of his commissions, $1,200, and decided to go into business for himself.

He opened a modest little shop on July 3, 1899, when he was only 20, and his first year's gross receipts were $8,000, which meant much in those easy times.

"There has never been a year since I have been in business," declared Mr. Stewart, "that I did not make money. But," he added with a laugh, "It was not in the contracting business that I made my money. It was in salesmanship. Many plumbing contractors then were almost totally innocent of business principles, their whole aim being to get the job because it was a job. They had no standards for themselves, and did not reckon their services worth more than wages."

S. B. Stewart's Plumbing and Heating Establishment at 210 Bourbon Street, New Orleans, La.

Three years after he entered business, Stewart married. The family lived carefully, and put the money back into the business. Stewart gradually increased his line. He was one of the first to put in a full stock of electrical fixtures. That was 20 years ago. He invented a water filter which is still in great demand. His inventive mind was responsible for his keen interest in every new development in plumbing and electrical fixtures. As smaller shops went to the wall, because they did not observe the rules of business, he bought them out.

The Stewart establishment today is built more on the

S. B. Stewart's Display Salesroom on the Occasion of His Twenty-third Business Birthday.

principles of merchandising than on contracting. He does take plumbing contracts, but his customers are those who insist on knowing they are getting quality service. The so-called cheaper class of work passes him by.

Artistically Arranged Show Windows and Display Rooms.

Stewart's show windows and display rooms are artistically arranged. There are heavy carpets on the floor, and there is a distinct home-like atmosphere about the place. Even in the summer time, the store looks cool and refreshing and inviting. The psychological effect on buying is obvious. Courtesy has been one of the principal assets of the business ever since it was opened; courtesy, and a study of the needs of the people.

Mr. Stewart is one of the most enthusiastic believers in advertising. That is why he bought a full page in a local paper and invited all New Orleans to celebrate his 23rd birthday in business this year.

"Not a thing will be sold on that day," he announced. "We'll just have music, serve refreshments and have a good time."

Did the people of New Orleans go to that party? They did. All day long,—hundreds of them,—some were old customers, and some were persons he had never seen before, who were attracted by the advertising and wanted to find out what kind of an individual this could be who was entertaining the whole city and refusing to make a sale.

The guests were met at the door by Mr. Stewart and his family of clerks, and shown through the establishment. Not a word about price,—only service and beauty were discussed. To many the trip was a liberal education in combined art and utility. Then the trip of inspection over, the guests were conducted to the buffet where they were served sandwiches, cake, ice cream, and punch, the punch coming from a bowl over a century old,—an heirloom of the Stewart family. After that, they were asked to sign the visitor's book, and those who signed have since been put upon Mr. Stewart's mailing list.

Did they try to buy on that birthday? They did. The host was kept busy explaining why he couldn't make a sale. "Pleasure before business," he said. "On with the dance!" Some were so insistent that he had to accept the orders, but he didn't book them until the next day.

Results? It's hard to reduce it to dollars and cents. The benefits will extend over a term of months, perhaps years. But the week after the party, Stewart sold more than $1,000 worth of gas steam radiators. This in the summer time, mind! He ascribes those sales to the anniversary. The people saw what they were, and had the advantages explained to them. He also sold half a dozen electric washing machines that week, not to mention many drawing room lamps and other fixtures which he does not think he would have sold had he not given the little "blow-out."

He gave away two attendance prizes—a 12-inch oscillating fan, and a fancy floor lamp. The presents were delivered to the homes of the recipients.

Mr. Stewart's Valuable Lesson.

"What is the greatest lesson you have learned during your 23 years in business?" Mr. Stewart was asked.

"The most valuable lesson I learned—because it is the one on which I base my entire success," he replied, "is that it doesn't pay to get the job just for the job's sake.

"After being in business for three years and taking work at prices that were eminently satisfactory to the general contractors, I found that, though I had plenty of work and was executing it with the greatest possible economy and efficiency, when the books were balanced, there was barely any profit left for me. The only profit I made was from selling goods from my store, and from my water filter, which I had patented and put on the market.

"I then decided that I would not work for anyone who was unwilling to remunerate me properly. I noticed that the doctor, the lawyer and the professional man generally set prices for their services which they considered fair and to which they felt entitled. As I felt that I had given as much of my time and life to the study of my particular line as they had, I could see no good reason why I should work at a lower rate than the average professional man.

"When I first put my new business principles into effect,

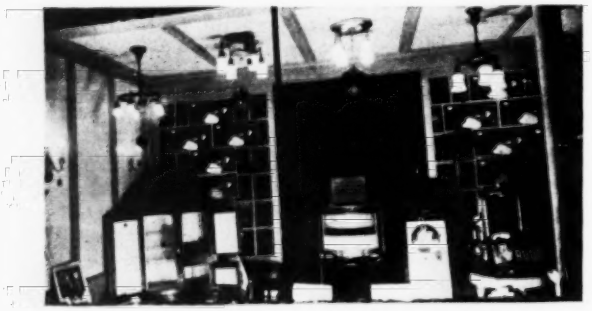
Another View of S. B. Stewart's Salesroom in New Orleans, La.

I met with much disheartenment. I saw many customers turn from me and go to the cheaper man. However, the result at the end of the year was gratifying, for while I was doing less contracting work, I was making more money. And as that was the result I was looking for, I decided to continue on in that course. Ever since, I have seen my business grow in volume and profits."

Formulate a Plan and Stick to It!

"Formulate a plan and stick to it," is the advice that Mr. Stewart would give to anyone who wants to "arrive." His own business is a striking example of what persistent driving along the right line will do.

He saw, after he had been in business but a short time, that his natural bent was for selling—merchandising his



Show Window in S. B. Stewart's Establishment in New Orleans, La.

wares—rather than for close and careful figuring on contracts, and without further ado he started in to merchandise. Now his only contracts are those in which the people want genuine dependable quality work at a fair price. He admits that there are many others who do work cheaper than he can do it, but this does not bother the House of Stewart; why should it when there are thousands of different plumbing fixtures, electrical fixtures, appliances for the kitchen, the parlor and in fact for every other room in the house to be sold to a ready market and at a good profit to the merchant?

At the end of twenty-three years Mr. Stewart is still an enthusiastic advocate of merchandising in the plumbing business, and although he was open one whole day without making a sale, he feels that it was a day well spent, and some time, in the future New Orleans may once more be the guest of the plumbing and heating dealer who decided on his course and then stuck to it.

Coal Production from January 1 to July 31, covering three months before the coal strike and four months under strike conditions, was approximately 20 per cent short of the same period in 1921, according to figures of the United States Geological Survey. Total bituminous and anthracite production the first seven months of 1921 was approximately 300,000,000 tons, of which 50,000,000 tons were anthracite. For the same period this year production was approximately 50,000,000 tons less, of which anthracite fell off 30,000,000 tons and bituminous 20,000,000 tons. This shortage represents approximately six weeks' fuel supply for the country as a whole.

Every Citizen of the United States would have received 112 letters last year if the aggregate letter mail which passed through the hands of the post office department was divided on a per capita basis. A statistician in the department has estimated that 11,335,000,000 letters went through the mails last year. Comparing this total with postal records of foreign countries, the department's expert announced that Great Britain had a "per capita exchange" of eighty-four, Germany twenty-five and Italy twenty-four.

BLACKBOARD EPIGRAMS

TO KNOW the full meaning of "Blackboard Epigrams" turn to "Domestic Engineering" for July 22, page 143. In case a copy of that issue is not at hand, here is a brief explanation. All a dealer needs to take advantage of this publicity idea is a blackboard, placed out in front of his place of business. Also a stick of chalk. The blackboard should be about three or four feet long and about two feet wide, and it should be so placed as to be easily seen by the largest number of people.

The idea is to attract attention and give the public something to talk about. A blackboard, with its daily epigram, will serve a plumbing and heating dealer in much the same way that a similar board, with the daily baseball score or weather forecast, serves other lines of business.

Those who wish to make use of the blackboard should write or print a new epigram every morning. Doing this every day is what counts. Here are the first seven epigrams, reprinted from the issue of July 22nd:

A bore is a man who talks so much about himself that you don't have a chance to talk about yourself.

* * *

Many men think they can make gold out of their brass.

* * *

None is so dead as he who hangs himself.

* * *

There are just two things to worry about—everything and nothing.

* * *

When in doubt, mind your own business.

* * *

Health is free, but you have to work to keep it.

* * *

A woman in evening dress can't laugh up her sleeve.

There are the first seven. Here are seven more, which, all told, will give those dealers who are interested enough epigrams for a good start:

It is a poor way that won't work both rules.

* * *

A good plan is to pay as you go—unless you are going for good.

* * *

The only way to play with fire is with a hose.

* * *

A man isn't a musician because he fiddles around.

* * *

Silence is golden because few people can talk as well as they look.

* * *

A hip lawyer is one who defends bootleggers.

* * *

Two heads are better than one—if they are on dollars.

Seven epigrams will be printed each week. Use them, or dig out others, or make up your own. Where or how you get the epigrams doesn't matter.

THE PROPER METHOD *of* INSTALLING ALL TYPES *of* GAS-FIRED WATER HEATING EQUIPMENT

Notes on and Illustrations of Practical Installations of Hot Water Supply Systems

By N. T. Sellman

Service Engineer for the American Gas Association

THE object of this article is to show, with simple sketches and notes, what is now considered to be good practice in installing water-heating equipment. A correct installation results in perfect safety, maximum life of equipment, maximum efficiency and minimum maintenance.

Small Circulating Water Heaters—"Non-Automatic."

The following notes and sketches on the proper method of installing circulating water heaters will help to make these installations more satisfactory and economical.

(a) Make the circulating pipes between the heater and tank as free from bends and fittings as possible and use the largest practical pipe size (as a rule ¾ inch).

(b) Ream out the ends of all pipe under 1 inch that is used on circulating lines between tank and heater.

The use of brass pipe on the hot water circulating line from heater to tank is recommended particularly for high temperature circulation.

(c) Place unions as close to heater as possible on the hot and cold water circulating lines.

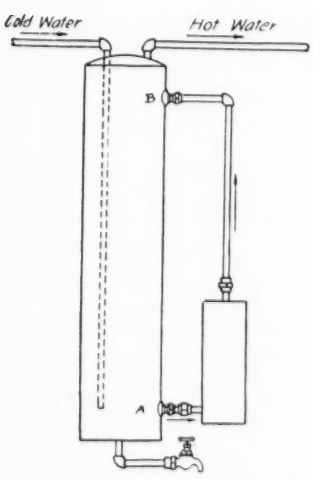


Fig. 1.

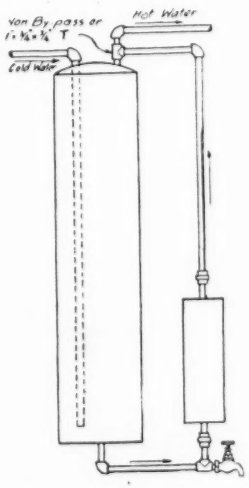


Fig. 3.

(d) Place a sediment blow-off valve or cock at low point under the tank.

(e) The special side tappings as shown in Fig. 1 are recommended without qualification. When used without a thermostat the lower tapping "A" should be no less than 6 inches above the bottom of the tank and the upper tapping "B" no greater than 3 inches from the top. This arrangement allows free circulation, which results in relatively large volume storage without overheating, it eliminates short-circuiting of water through the heater and provides ample sediment of storage below the circulating line, thus preventing sendiment from getting into the heating element.

The special side tappings can easily be made on any kitchen boiler that is not so provided, by the use of the adjustable tank coupling shown in Fig. 2, and a circular hack saw. The adjustable coupling is assembled in the hole and made firm. The whole operation is very simple and quickly accomplished.

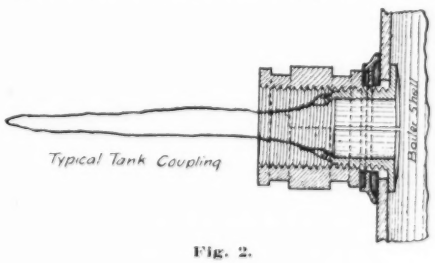


Fig. 2.

(f) Fig. 3, shows a heater connected to a tank without any special tappings, merely using the customary top and bottom tappings as supplied on ordinary kitchen tanks. This piping will never give the excellent results obtained from the arrangement shown in Fig. 1. If for some reason the connections must be made as in Fig. 3, the following precautions must be taken: (1) Get bottom of coil at least 6 inches above bottom of tank; (2) use a non by-pass T at top of tank on the hot water line from heater or else 1-inch x ¾-inch T with the 1-inch outlet towards the tank and the T placed as close to the tank as possible.

(g) Try to get consumer to allow you to cover the tank and all the hot water pipe. An asbestos or air cell covering of about 1½-inch thickness will quickly pay for itself.

(h) If a check valve or reducing valve is on the cold water supply pipe from the street to tank, then an automatic water relief faucet or valve should be installed on the hot water line.

Maintenance:—Tell your customer that the burner should at all times be adjusted so that the gas flames are blue with no yellowish tips whatsoever. Be sure that the sharp inner cone of the flame does not touch any of the water-heating surface. Occasionally the burner should be cleaned and any collection of dirt on the heating surface removed if full efficiency is to be maintained. At least once a month a pail

of water should be drawn off through the drain cock under the tank.

Automatic Storage Water Heaters.

Automatic storage water heaters can be divided into the following systems:

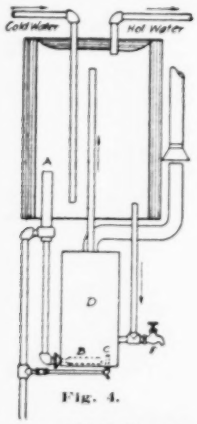


Fig. 4.

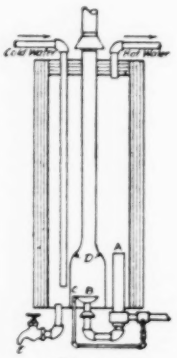


Fig. 5.

Fig. 4. Assembled Storage System with External Heater. A—Thermostat. B—Burner. C—Pilot. D—Heater. E—Drain.

Fig. 5. Assembled Storage System with Internal Heater. A—Thermostat. B—Burner. C—Pilot. D—Heating Surface. E—Drain.

1. Assembled heating systems consisting of an insulated tank (usually vertical) heater and thermostat, assembled by the manufacturer ready to install. The heating element is either a circulating heater attached to the tank with a simple run of pipe, or else a heating element located within the tank. The assembled units range in size from about 15 to 70 gallons storage capacity and 30 to 60 gallons per hour heating capacity. These systems are either shipped fully assembled or else knocked down, but with all parts fitted and ready for assembly.

2. Built-up direct circulating systems consisting of a horizontal or vertical storage tank, a circulating heater and thermostat. The heaters for this purpose vary in capacity from the small circulating copper coil heater to large cast iron heating boilers with a capacity up to 1,000 gallons per hour. The storage tank capacity can be of any desired amount with the tank horizontal.

3. Built-up indirect steam systems consisting of a horizontal storage tank with steam coils in it, a low pressure steam boiler and thermostat. The boilers and tanks are

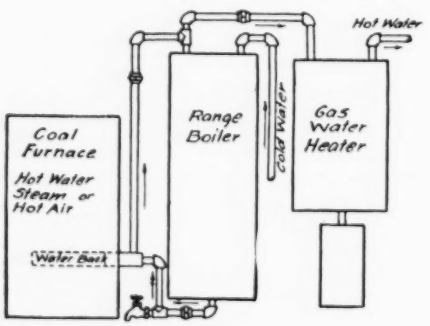


Fig. 6.

available in the same capacities as Class 2. The temperature control can work directly on the gas supply or else on the steam supply from the boiler to the coil within the tank.

In the latter method of control the steam pressure is then automatically maintained by the steam pressure regulator acting on the gas supply.

Installation Information.

A. Points Common to all Storage Systems:

The most important item to pay attention to is the proper location of the appliance. As this is an automatic appliance it should be flue-connected and the heater should, therefore, be placed so that a short simple flue is possible. An effective back draft diverter should be placed in the flue near the heater.

The next important thing in determining the location of the heater is the hot water house pipe. Make the connection from the tank outlet to the hot water pipe as direct as possible and favor that portion of the house where most of the fixtures are located by placing heater as nearly under the main riser as possible.

For economy of operation avoid the use of house circulating lines whenever possible. In the average building under four floors in height it is absolutely unnecessary and a tenant would never know whether the water was circulating or not. In many small dwellings there is no circulating return line but, if there is one, it can usually be cut off by closing a valve on the return end in the cellar. The following table shows the maximum length of pipe from the tank to the most remote fixture that can be satisfactorily used without circulation:

Pipe Size	Linear Ft.
½-inch	150
¾-inch	90
1 -inch	50
1¼-inch	30

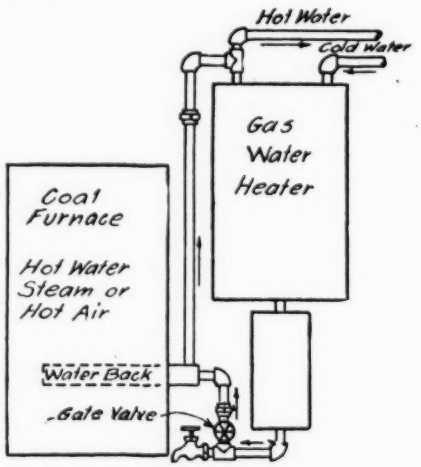


Fig. 7.

The value of insulating all hot surfaces cannot be too strongly emphasized. The following minimum coverings are recommended for various temperatures:

Tank Temperature	Thickness of Covering	Approximate Saving of Cu. Ft. of Gas per Month per Sq. Ft.
120° F	1 inch	85
140° F	1½ inch	125
160° F	2 inch	160
180° F	3 inch	200

If a storage system is not equipped with a pressure relief valve and there is a check valve between the tank and the street service then at least one faucet should be of the pressure relief type.

B. Assembled Systems (Classification No. 1).

There is very little chance of making any mistake in connecting up these systems as there are only three pipe connections to be made, namely, cold water inlet, hot water outlet, and gas.

Of these, there could only be a question as to which was the correct cold water or hot water connection as they are both usually located at the top of the vertical storage tank. Most manufacturers label the connections, but should they

not be discernible they can be distinguished by the fact that the cold water connection has an internal tube reaching to a point near the bottom of the tank, while the hot water outlet comes directly off the top of the tank.

The thermostats on these systems are usually set by the manufacturer at the factory and should not be tampered with. Should an adjustment prove necessary have it made by the manufacturer's representative, if you do not thoroughly understand its mechanism.

Care should be taken when a heater of this type is connected to the water-back of a coal stove or furnace, that the thermostat will not be ruined by overheating. This is especially true of tanks below 30 gallons capacity equipped with thermostats that use the expansive force directly for closing the gas valve.

Fig. 4 shows an assembled storage heater with an external heater and Fig. 5 with internal heating surface. Many makes of these heaters have come into wide use throughout the country for domestic purposes. They are very often used as auxiliary heaters in the winter time along with furnace and range water-backs.

Figs. 6 and 7 show how to connect a water-back to a small storage heater both with and without a range boiler. The system shown in Fig. 7 is not as desirable as the reheating system (Fig. 6) for the reason that the water is liable to become overheated in the insulated boiler of the gas-heated unit during cold weather, unless a small pipe is used in the

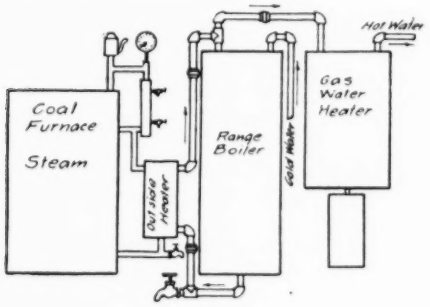


Fig. 8.

fire pot of the furnace. A gate valve must be placed in the circulating pipe, as indicated, and this valve should be closed whenever the furnace is not in use in order to prevent the hot water from circulating through the water-back and thus wasting gas. Figs. 8 and 9 show the same methods applied to the exterior steam water heaters, which are now to a great extent replacing water-backs.

C. Built-up Direct Circulating Systems (Classification No. 2).

The smallest and cheapest form of this system is one using an ordinary vertical kitchen boiler and a circulating heater with a thermostat.

This assembly is shown in Fig. 10 and illustrates the most favorable piping for storage at desired temperatures. The lower "X" is located on the side of the tank, the more uniform will be the temperature throughout the tank. The nearer "A" is to "Y" the quicker will the thermostat open the gas valve on the drawing of any water.

It is well to make special mention here of the proper location of the pilot light. First, it should be so placed that its flame does not interfere with the flames of the main burner. Second, it should not be placed in front of any opening in the casing where it will be subjected to drafts or rush of air on the ignition or extinguishing of the burners. Third, the lowest part of the pilot flame should be about 1½ inches above the burner parts.

The use of standard cast-iron house heating boilers or of multi-coil heaters for storage water heating has made it possible to obtain much larger installations than hitherto. Fig. 11 shows a good piping assembly for such a system. The best location for the thermostat is in the tank at the end where the hot water outlet is located and at half depth of the tank. The heater should be directly under the tank and, in piping, use the largest practical pipe size and only gate valves on the circulating lines.

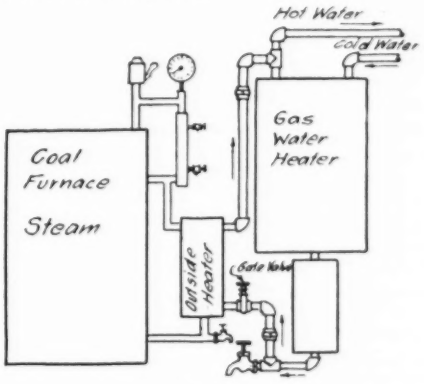


Fig. 9.

In the case of the built-up storage systems the thermostat comes as a separate part and is not set for any definite temperature. The following rules can be used as a guide to determine the first "guess" on what will give satisfactory service.

	Degrees F.
1. a. Private houses under 4 stories	130°
b. For each additional floor	5°
2. a. Apartment houses under 6 stories	135°
b. For each additional floor (180° Max)	5°
3. a. Office and lofts under 6 stories	125°
b. For each additional 2 floors	5°
4. Hotels	160°-180°
5. Public Baths, gymnasiums, etc	125°
6. For dishwashing machines	160°

The above temperatures can in many cases be reduced and should be, if possible, as the lower the temperature the

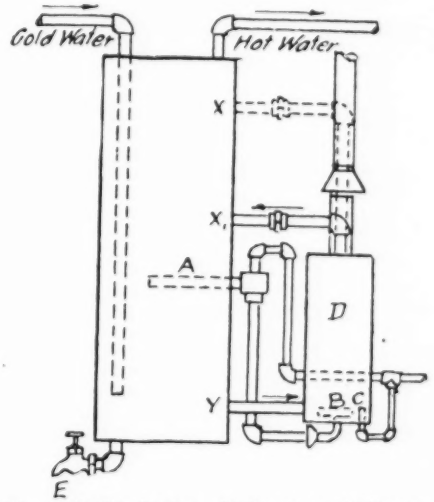


Fig. 10. Built-Up System, Made of an Ordinary Kitchen Boiler, a Circulation Heater and a Thermostat. For Quick Heating with about 30 Degrees F. Difference between X and Y, Connect at X. For Slow Heating with about 10 Degrees F. Difference between X and Y, Connect at X_1. A—Thermostat. B—Burner. C—Pilot. D—Heater. E—Drain.

greater the economy up to the point where sufficient hot water can be delivered without causing waste.

Direct circulating heaters should not be used where the water pressure is excessive, as in the case of tall buildings. No set rule should be made, but in general it will be well

to consider the Indirect Steam system (classification No. 3) when the service pressure exceeds 70 lb. or where the building is over 8 stories in height.

D. Built-up Indirect Steam Systems (Classification No. 3).

This system consists of a low pressure automatic gas-fired steam boiler of the house-heating type which supplies steam to coils located in the lower section of a horizontal storage tank or else to a small heater of the instantaneous steam type. The former type of system is shown in Fig. 12. The instantaneous type requires a large boiler unless it is used in conjunction with a storage tank.

The most important factors to consider in steam-heated systems are to get the steam piping and steam coils free of air pockets and to have sufficient head from the steam coil return to the water level of the boiler so that the coil is always well drained. Less than 3 ft. head is likely to cause trouble, but in all cases take advantage of all the head room possible.

Fig. 12 shows all the necessary parts to this system and the proper location of each. The thermostat shown is of the steam type, but could equally well be one that worked directly on the gas supply.

If the steam boiler is oversized then the gas-valve type is most efficient, but if the boiler is of the correct size then the steam valve has the advantage that it immediately responds, supplying steam to the coils, when the thermostat opens up.

Automatic Instantaneous Heaters.

These heaters differ from all the preceding types in that they do not store up any heated water and must, therefore, heat directly on demand. The

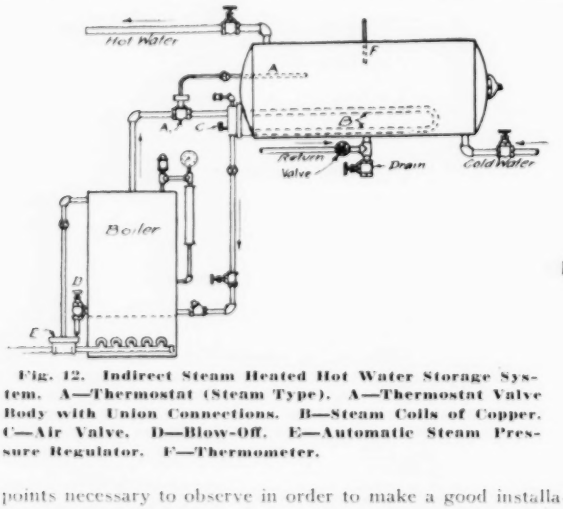


Fig. 12. Indirect Steam Heated Hot Water Storage System. A—Thermostat (Steam Type). A—Thermostat Valve Body with Union Connections. B—Steam Coils of Copper. C—Air Valve. D—Blow-Off. E—Automatic Steam Pressure Regulator. F—Thermometer.

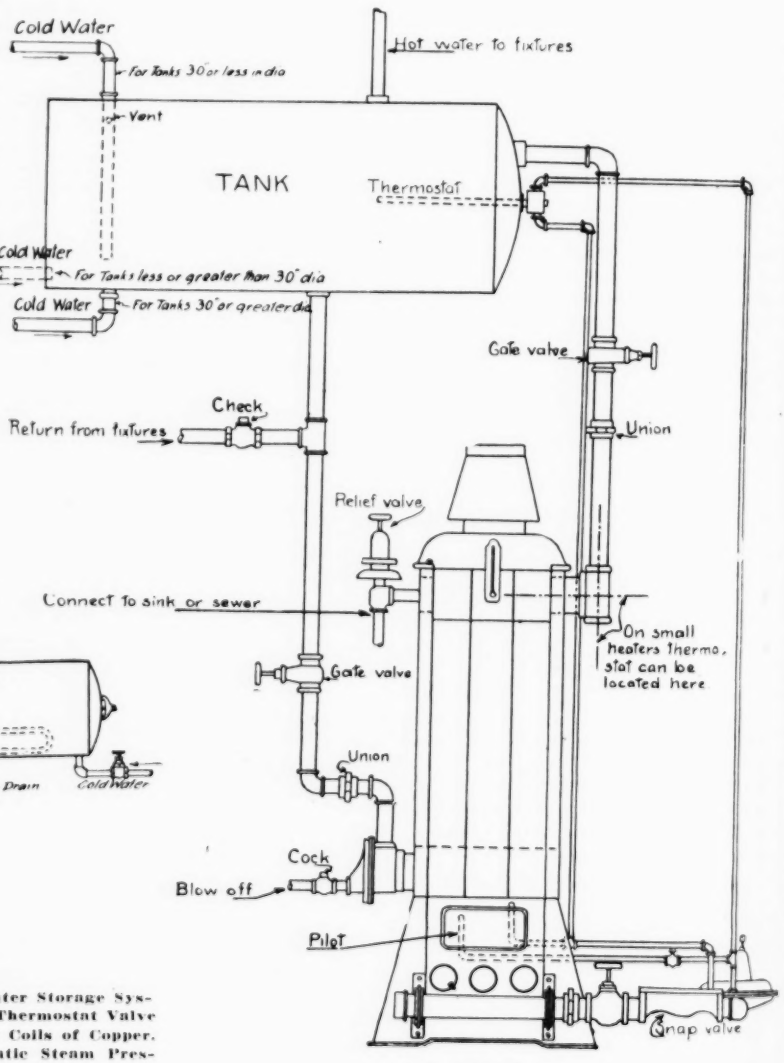


Fig. 11.

points necessary to observe in order to make a good installation are as follows:

1. **Cold Water Supply.** Make sure there is sufficient water pressure to properly operate the water valve. (Figure on ten pounds per square inch pressure drop through the valve when heater is passing the quantity of water for which it is designed.) After allowing for this pressure drop there should still be sufficient water head to assure a good flow from the hot water fixtures on the top floor. A quick way to determine this is to measure the water pressure on the top floor and if it is 10 lb. or greater, then conditions are favorable. The cold water supply pipe should be of equal size or larger than the inlet connection of the heater. A union should be placed in this line nearest the heater and then a valve for shutting off the supply in the event that repairs are necessary.

2. **Flue Connection.** The next consideration is that a good flue be available. To secure the best results it is absolutely necessary that the heater be connected to a flue which will provide a good draft and that it be further protected with some form of back-draft diverter. The flue connection from the heater to the chimney should be full size as called for by heater flue collar.

3. **Gas Supply.** The gas supply should be of sufficient size to allow for 60 cubic ft. of gas per hour for each gallon per minute rating of heater (600 B. t. u. gas). It has always been considered good practice to install a separate supply line for the automatic heaters direct from meter to the appliance. The meter size should be rated on no greater than a five-tenths pressure drop. A gas service cock should be placed on the gas supply for throttling purposes in case of necessity.

4. **Hot Water Supply.** Hot water connection should be made from the outlet of the heater by a line not larger in

(Continued on Page 287.)

AN OLD WAY *to* SELL MORE GOODS

EDITOR'S NOTE:—By using one of these Editorials each week in your newspaper advertising you will help to educate your community in the true facts of plumbing and heating merchandising. Such education will create good will and build your business. The more the public knows the better your service will be appreciated. Take one Editorial a week and reprint it in the upper left corner of your regular advertising space. Have it set in bold-faced type, with rule or border around it, as indicated on this page. This will cause the Editorial to stand out and make it easy to read. The use of these Editorials from week to week will not add a dollar to your advertising expense, but they will help along sales.

THIS is not new. In fact it is very old. Yet many business men do not realize that selling an idea is the way to sell the goods the idea represents. Selling an idea may be called selling sentiment, or beauty, or hope, or vision, or comfort. This subject is so well discussed in a recent number of "Studio Light," published by the Eastman Kodak Company, that some of the points should be of interest.

"The most successful clothing salesman does not attempt to sell a man a Palm Beach suit," says the photographer who writes about selling an idea. "Instead of trying to sell a man a Palm Beach, the salesman sells him coolness and comfort for the hot days which are to come."

Again: "The most successful optician does not attempt to sell a man a pair of spectacles. No man ever wanted a pair of spectacles. He sells him good vision, freedom from headaches."

Also: "The most successful shoe salesman does not try to sell a man shoes. He sells him foot comfort, freedom from aching arches, burning bunions or painful corns."

With that said, the writer goes on: "It is not the article that the most successful merchant stresses; it is the happiness which will arise from the possession of it." Then, speaking of photography, which is the writer's business, but whose words would be the same were his business plumbing or heating or what not, he says: "I do not sell pictures. Of course, pictures are what I deliver, and money is what I take in exchange for them, but my effort is not to sell the thing, but that for which the thing stands, that which comes from the possession of it."

Selling an Idea.

There is the thought. It is the same thought upon which rests the Bath a Day Movement. A Bath a Day is for the purpose of selling the idea of more frequent bathing. Sell that idea to a community and the community is sure to demand everything which goes with the idea. Get a community to reading "The Story of the Bath," and that community will grow an interest in bathing, which sooner or later will grow sales of plumbing and heating goods.

The idea is the thing. Ideas are what all of us spend our money for. Until we are made to understand the idea of a warm, comfortable home we are not interested in a heating plant; until we are sold the idea of better health, convenience and happiness, few of us are going to spend money for plumbing or bathrooms or sinks or laundry tubs, or any of the other things offered for sale.

Most of the Advertising Editorials are written to sell ideas. For once an idea is sold, a dealer does not need to worry about the sale of the goods which the idea represents.

"Sentiment," says the writing photographer, "is one of the great moving springs of humanity." And that is true. The sentiment attached to a pleasant, convenient home and to strong, healthy, happy children, is worth more to sales than any price tag that can be written.

"I say," concludes the photographer, "that the most lasting, the most growing and the most profitable success is founded upon selling, not the thing itself, but the idea or the sentiment for which the thing stands."

The Idea, the Thing, the Price.

Of course, there always comes a time when the thing—the bathroom, or the heating plant, or the shower, or whatever it may be—must be brought in, and there also comes a time when the price must be mentioned. But if the idea has been well sold, people will want to see the thing the idea represents, and when they see it they will not quibble over the price. Price means little to a man who knows what he wants and knows why he wants it. But to introduce the thing and mention the price before a person has been sold the idea is like putting the buggy before the horse.

To know that all this is true, ask yourself why you have bought a number of things. Outside of enough food to satisfy your hunger and enough clothing to clothe your nakedness, practically everything you buy is bought because the idea of it all has been sold to you. You are being sold ideas every day. This idea of selling an idea has been sold to you, if you agree with the lines you have just read. If you have not been sold the idea of selling an idea, it is because you have not been told about it often enough.

A Series—No. 37.

MILK AND WATER.

A FARMER showed a city man over his farm. The farmer was proud of his home, his barns, his lighting and water supply systems, and his many comfortable conveniences.

The fat hogs, the fine cattle, the big horses. He was proud of these, too. For they were a little fatter, and a little finer, and a little bigger than any others in the neighborhood.

He was extra proud of his cows and their large milk production. "But," said the farmer, pointing to a part of his water supply system, "that pump there is the best cow on the farm."

And right away the city man tattled that the farmer was watering his milk. Was the city man right? Yes, he was right, and also wrong.

What the farmer meant, and what the city man failed to understand, was this: The water supply system furnished plenty of running water; and by having all the water they wanted to drink when and where they wanted to drink it, the cows produced more milk.

You see the farmer did water his milk; but he watered it through the cows, just as he watered his pork through the hogs and his beef through the cattle.

AIR CONDITIONING

The Evolution of the Science of Air Conditioning and Ventilation—How It was Brought About by Study, Experimentation and Research

By James Mackay

(Continued from Page 180 in the July 22nd Issue.)

Passing out of the air washer with a fixed quantity of moisture of an amount that will preclude the condensation of moisture later on in the building, except perhaps on windows in very cold weather, the air passes through the first group of re-heaters and to the fan as previously described. It enters at one side if a single inlet fan, and at both sides if a double inlet fan. The entry of the air is at the center of the fan wheel; the wheel revolves in the direction indicated by the arrows in Fig. 1, and immediately begins to revolve in the same direction as the fan wheel, with a force—the centrifugal force—carrying it to the periphery of the fan wheel where it leaves the tip of the blades at a velocity greater than the tip speed of the fan wheel. This increased velocity is due to the combined forces of the revolution of the mass and the centtrifugal force. It is sent into the plenum chamber and distributed through the double mixing dampers into the ducts. The ducts are of sizes suited to the cubic ft. of air which is to be passed, at the velocity determined upon. A very convenient Friction Chart (Fig. 6) published by the American Blower Co., will give very exact results in the sizing of ducts. The sizes of ducts given is in diameter of round pipes. As ducts in this class of work (school work) are of rectangular shape, the following table will give the same amount of air, at the same velocity and friction loss, and enable the determination of the size by the Friction Chart, and its conversion into rectangular duct of proper size. The conversion table is necessary as rectangular ducts of equal area as round give different friction results.

Conversion Table.

To convert round ducts into equal friction—velocity—capacity, ducts of rectangular shape.

The conversion table is by the Bayley Manufacturing Co.

The velocities in main ducts for school work should not exceed 1,200 ft. per minute in the main ducts at the fan and in a blast system between 800 and 1,000 is preferable; short and small branches and at extreme ends and near registers the velocity should go as low as 400 to 600 ft. per minute. Velocity at outlet of registers into the room should be from 200 to 300, except that, if taken in at the ceiling, the velocity may be up to 500 ft., but vent registers located at the floor line should have velocities:

Not over 200 ft. p. m. if occupants within 4 ft.
Not over 300 ft. p. m. if occupants within 6 ft.
Not over 400 ft. p. m. if occupants more than 6 ft.
Ceiling vents may be 500 ft. p. m. and upward.

The manner of disposing of the ventilated air, as shown in Fig. 1, is ideal from the contractor's standpoint, as it is the most efficient and economical in first cost, and simplifies the recirculating damper control. But unless the construction is fireproof, some of the states do not permit this, but require that the tops of the vertical vent ducts be joined into a horizontal duct system and connected direct to the bottom of each ventilator. If, however, the construction is fireproof the layout shown is much the better method. The vents from toilets, locker rooms, etc., should have a special system of ducts connected direct to a ventilator as shown,

Conversion Table.

Side Rect. Duct.	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	42	44	46	48
8	6.9	7.6	8.2	8.8																																				
9	7.3	8.	8.7	9.3	9.9																																			
10	7.7	8.4	9.2	9.8	10.4	11.																																		
11	8.	8.8	9.6	10.2	10.9	11.5	12.1																																	
12	8.3	9.2	10.	10.7	11.4	12.	12.6	13.2																																
13	8.7	9.6	10.4	11.1	11.8	12.5	13.1	13.7	14.3																															
14	8.9	9.9	10.8	11.5	12.3	12.9	13.6	14.3	14.9	15.4																														
15	9.2	10.2	11.1	11.9	12.7	13.4	14.1	14.7	15.3	16.	16.5																													
16	9.5	10.5	11.4	12.3	13.1	13.8	14.5	15.2	15.8	16.5	17.1	17.6																												
17	9.8	10.8	11.8	12.6	13.5	14.2	15.	15.7	16.3	17.	17.6	18.2	18.7																											
18	10.	11.1	12.1	13.	13.8	14.6	15.4	16.1	16.8	17.4	18.1	18.7	19.2	19.8																										
19	10.3	11.4	12.4	13.3	14.2	15.	15.8	16.5	17.2	17.9	18.6	19.2	19.8	20.4	20.9																									
20	10.5	11.6	12.7	13.6	14.5	15.4	16.2	17.	17.6	18.4	19.	19.7	20.3	20.9	21.5	22.																								
22	11.	12.1	13.2	14.2	15.2	16.1	16.9	17.8	18.5	19.2	19.9	20.6	21.3	21.9	22.5	23.1	23.6	24.2																						
24	11.4	12.6	13.8	14.8	15.8	16.8	17.6	18.5	19.3	20.	20.8	21.5	22.2	22.8	23.5	24.	24.7	25.2	25.9	26.4																				
26	11.8	13.1	14.3	15.4	16.4	17.3	18.3	19.2	20.	20.8	21.6	22.3	23.	23.8	24.4	25.1	25.7	26.3	26.9	27.5	28.1	28.6																		
28	12.2	13.5	14.8	15.9	17.	18.	19.	19.8	20.7	21.5	22.4	23.1	23.9	24.6	25.3	26.	26.6	27.3	27.9	28.5	29.1	29.7	30.2	30.8																
30	12.6	13.9	15.2	16.4	17.5	18.5	19.5	20.5	21.4	22.2	23.1	23.9	24.7	25.4	26.2	26.8	27.5	28.2	28.8	29.5	30.1	30.7	31.3	31.9	32.5	33.														
32	12.9	14.3	15.6	16.9	18.	19.1	20.1	21.1	22.	22.9	23.8	24.6	25.4	26.2	27.	27.7	28.4	29.1	29.8	30.5	31.1	31.7	32.3	32.9	33.5	34.1	34.6	35.2												
34	13.2	14.7	16.1	17.3	18.5	19.6	20.7	21.6	22.6	23.5	24.4	25.3	26.2	26.9	27.7	28.5	29.2	30.	30.7	31.3	32.	32.7	33.3	33.9	34.5	35.1	35.7	36.3	36.8	37.4										
36	13.6	15.1	16.4	17.7	19.	20.1	21.2	22.2	23.2	24.2	25.1	26.	26.8	27.7	28.5	29.3	30.	30.8	31.5	32.2	32.9	33.7	34.3	34.9	35.5	36.1	36.7	37.3	37.9	38.5	39.1	39.6								
38	13.9	15.4	16.8	18.2	19.4	20.6	21.7	22.8	23.8	24.8	25.8	26.7	27.5	28.4	29.2	30.	30.8	31.5	32.3	33.1	33.8	34.9	35.3	35.9	36.5	37.1	37.7	38.4	39.	39.5	40.1	40.7	41.2	41.8						
40	14.3	15.7	17.2	18.6	19.8	21.1	22.2	23.3	24.4	25.4	26.4	27.3	28.2	29.1	29.9	30.8	31.6	32.4	33.1	33.9	34.6	35.3	36.	36.7	37.4	38.	38.6	39.3	39.9	40.5	41.1	41.7	42.3	42.9	43.4	44.				
42	14.5	16.1	17.6	19.	20.3	21.6	22.7	23.8	24.9	25.9	26.9	27.9	28.8	29.8	30.7	31.4	32.2	33.	33.8	34.6	35.2	36.	36.8	37.6	38.3	39.	39.6	40.3	40.9	41.5	42.1	42.7	43.4	44.	44.5	45.1	46.2			
44	14.8	16.4	18.	19.4	20.7	22	23.1	24.3	25.4	26.5	27.5	28.5	29.5	30.3	31.2	32.1	32.9	33.7	34.5	35.3	36.1	36.9	37.7	38.5	39.2	39.9	40.5	41.2	41.8	42.5	43.1	43.7	44.3	44.9	45.5	46.1	47.2	48.4		
46	15.1	16.7	18.4	19.8	21.1	22.4	23.6	24.8	25.9	27.	28.1	29.1	30.1	31.	31.9	32.8	33.8	34.6	35.4	36.2	37.	37.8	38.5	39.3	40.	40.8	41.5	42.2	42.9	43.5	44.2	44.8	45.4	46.	46.6	47.2	48.4	49.5	50.6		
48	15.4	17.	18.7	20.1	21.5	22.8	24.1	25.2	26.4	27.5	28.6	29.6	30.5	31.6	32.5	33.4	34.3	35.2	36.1	37.	37.8	38.5	39.2	40.	40.8	41.5	42.3	43.	43.7	44.4	45.	45.6	46.3	46.9	47.5	48.1	49.3	50.5	51.6	52.8	
50	15.7	17.3	19.	20.4	21.9	23.2	24.5	25.7	26.9	28.	29.2	30.3	31.3	32.2	33.1	34.1	35.	35.9	36.8	37.6	38.4	39.2	40.	40.8	41.5	42.3	43.	43.8	44.5	45.2	45.9	46.5	47.1	47.9	48.5	49.1	50.4	51.6	52.9	54.	
52	15.9	17.6	19.2	20.8	22.2	23.6	24.9	26.2	27.4	28.5	29.6	30.7	31.8	32.9	33.8	34.7	35.6	36.5	37.4	38.3	39.1	40.	40.8	41.6	42.3	43.1	43.9	44.7	45.4	46.1	46.8	47.5	48.2	48.9	49.5	50.1	51.3	52.5	53.8	55.
54	16.1	17.9	19.6	21.1	22.6	24.	25.3	26.6	27.8	29.	30.1	31.2	32.3	33.4	34.4	35.3	36.3	37.2	38.	38.9	39.8	40.7	41.5	42.4	43.2	44.	44.7	45.5	46.4	47.	47.6	48.4	49.2	49.9	50.5	51.1	52.3	53.5	54.8	56.	
56	16.3	18.2	19.9	21.5	22.9	24.4	25.7	27.	28.3	29.5	30.6	31.7	32.8	33.9	34.9	35.9	36.9	37.8	38.7	39.6	40.4	41.3	42.1	43.	43.8	44.6	45.4	46.2	46.9	47.7	48.5	49.1	49.9	50.6	51.3	52.	53.3	54.6	55.9	57.
58	16.6	18.4	20.2	21.8	23.3	24.7	26.1	27.4	28.7	30.	31.1	32.2	33.3	34.4	35.4	36.4	37.4	38.4	39.4	40.3	41.2	42.1	42.9	43.8	44.5	45.4	46.2	47.	47.8	48.5	49.4	50.	50.8	51.5	52.2	52.9	54.2	55.5	56.8	58.
60	16.8	18.7	20.4	22.1	23.6	25.1	26.5	27.8	29.1	30.5	31.6	32.7	33.8	34.9	36.1	37.1	38.1	39.1	40.	40.9	41.8	42.7	43.6	44.5	45.4	46.1	46.9	47.8	48.5	49.3	50.1	50.9	51.6	52.3	53.	53.8	55.	56.4	57.7	58.9
62	17.	19.	20.7	22.4	24.	25.5	26.9	28.2	29.5	30.9	32.1	33.2	34.3	35.4	36.6	37.7	38.7	39.6	40.6	41.6	42.5	43.4	44.3	45.1	46.	46.8	47.6	48.4	49.3	50.	50.9	51.7	52.4	53.	53.9	54.5	55.9	57.2	58.5	59.7	
64	17.3	19.2	21.	22.7	24.3	25.9	27.3	28.6	29.9	31.3	32.6	33.7	34.8	35.9	37.1	38.2	39.2	40.2	41.2	42.2	43.1	44.	44.9	45.8	46.7	47.5	48.4	49.2	50.	50.9	51.7	52.4	53.2	53.9	54.7	55.4	56.8	58.1	59.4	60.6
66	17.5	19.5	21.2	23.	24.6	26.2	27.7	29.	30.3	31.7	33.	34.2	35.3	36.4	37.6	38.7	39.8	40.8	41.8	42.8	43.7	44.7	45.6	46.5	47.3	48.2	49.1	50.	50.7	51.6	52.4	53.1	53.9	54.7	55.5	56.2	57.6	59.1	60.4	61.6	

and vent connections from chemical laboratories and elsewhere where fumes or odors from cooking are generated should also have a distinct system either connected direct at an exhaust fan in the attic discharging separately through the roof, or each room of this character should have its individual small exhaust fan discharging out the roof, where two or more such discharges are joined, each room vent duct connected should be provided with a back draft check damper, to prevent fumes from being sent into the room when the room exhaust fan is not running.

In smaller buildings where the conditions do not warrant the installation of an air washer, humidity may be added to the air by simpler and less expensive means, and these often serve the purpose admirably, where the earlier and later days of the school year are not sufficiently warm to justify an air cooling apparatus, or where the incoming air is free from dust and bacteria—which two terms are practically synonymous in heating and ventilating work—and so do not require an air washing equipment.

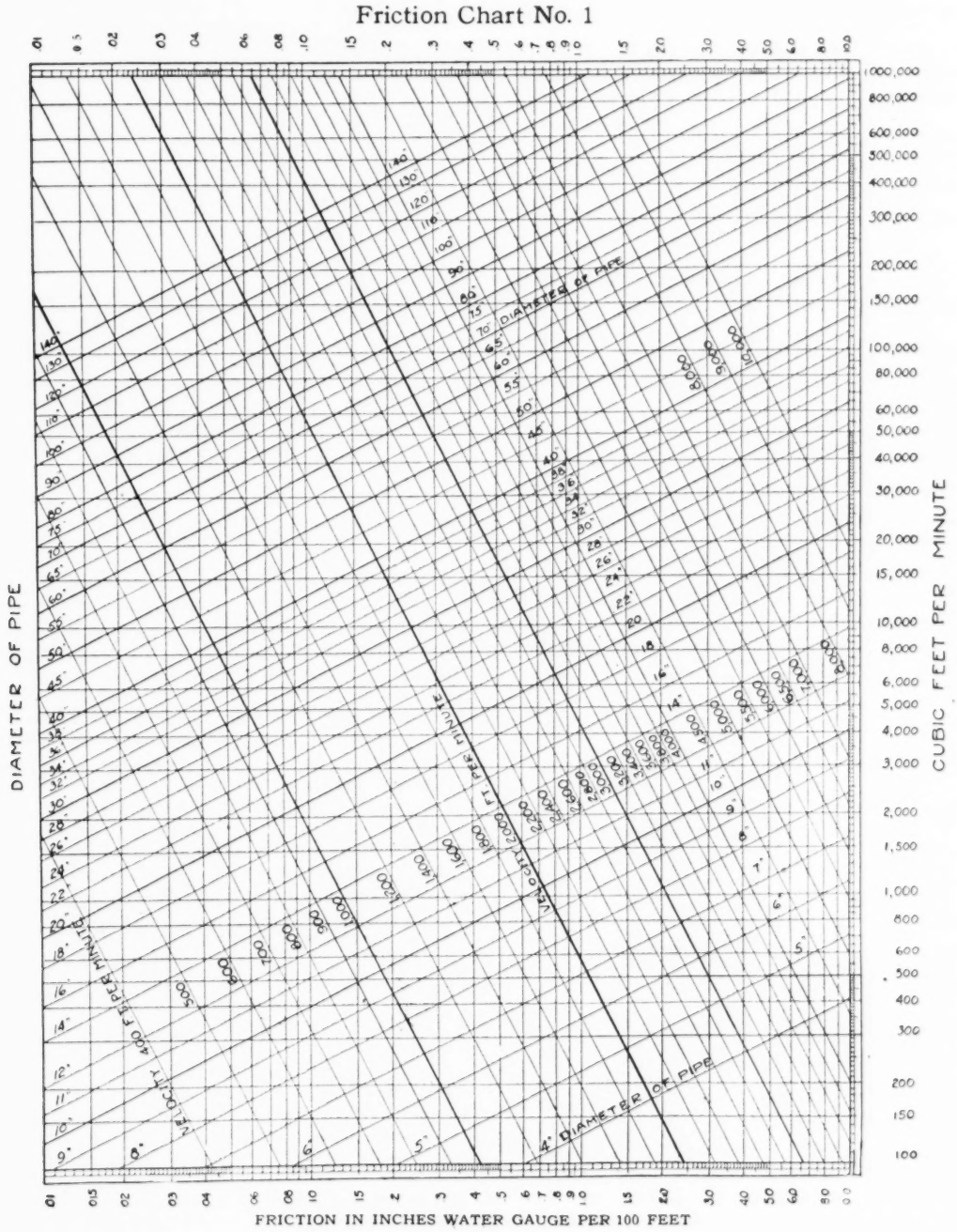

Friction Chart No. 1
DIAMETER OF PIPE
CUBIC FEET PER MINUTE
FRICTION IN INCHES WATER GAUGE PER 100 FEET
VELOCITY 1000 FT PER MINUTE
4" DIAMETER OF PIPE

Fig. 6.

Three such devices of unusual merit are shown in Figs. 7, 8 and 9. Fig. 7 is the Johnson type tank humidifier for fan systems; this consists, as can be readily seen from the drawing, of a double tank with a pipe connection connecting the tanks; the larger of the two tanks contains a brass or

copper steam coil for vaporizing the water, and the smaller tank is used for controlling the water level by means of a float valve connected into the city water supply line; this

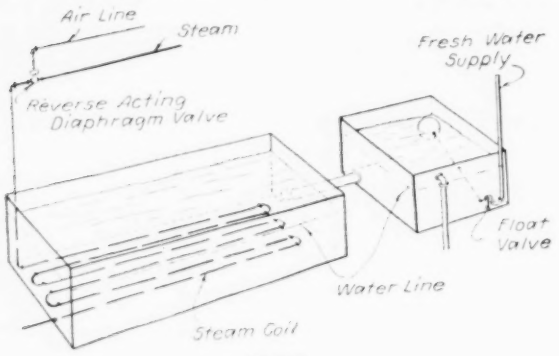


Fig. 7.

tank is also provided with an overflow. The amount of water vaporized is controlled by a diaphragm valve which

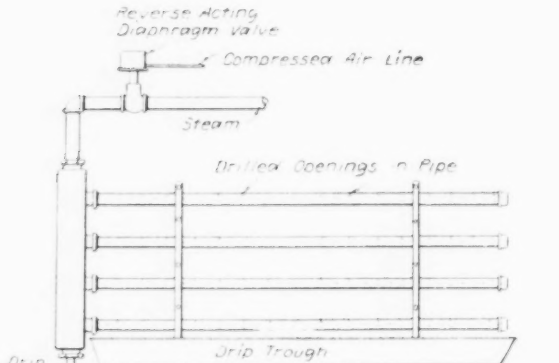


Fig. 8.

is normally closed by the spring surrounding the stem, and opened by means of the admission of air pressure to the

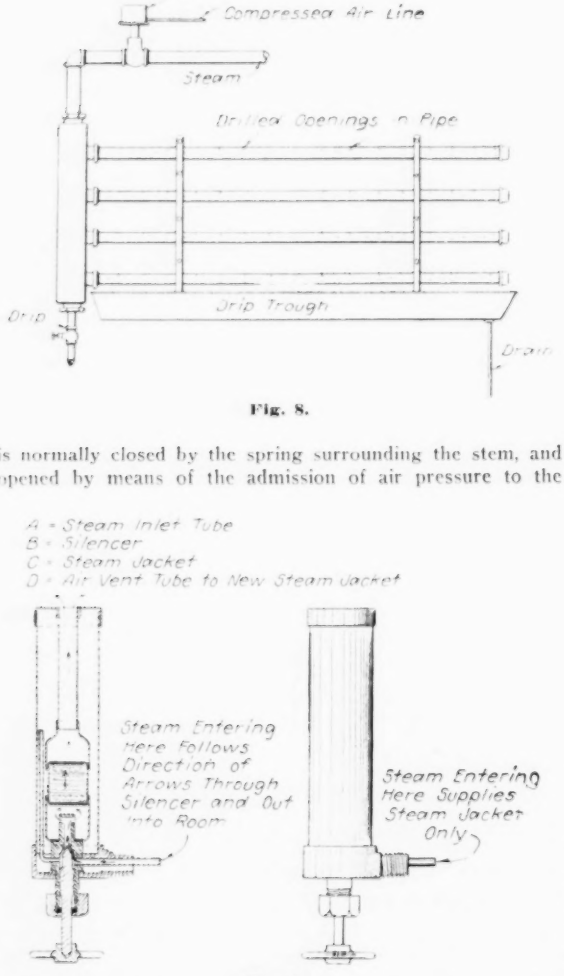

A = Steam Inlet Tube
B = Silencer
C = Steam Jacket
D = Air Vent Tube to New Steam Jacket
Steam Entering Here Follows Direction of Arrows Through Silencer and Out into Room
Steam Entering Here Supplies Steam Jacket Only

Fig. 9.

diaphragm, which air pressure in turn is controlled by the contraction and expansion of a humidostat located in the plenum chamber or main duct. The type of diaphragm valve used on the humidity control of this kind, which is normally closed, is called a "reversed valve" and is so used to prevent an excessive amount of vapor being sent into the system in the event of the interruption in the air pressure. This type of humidifier is of advantage where there is apt to be a perceptible odor from oil, etc., in the steam. Where steam is free of such odors, which it is (or should be) in a low pressure plant, the Johnson Grid humidifier is frequently used, this is a series of pipes (Fig. 8) having perforations at frequent intervals, steam being admitted to a branch tee through a reversed valve of diaphragm type controlled in the same manner as is Fig. 7. Each of the perforated pipes is wrapped with burlap or other material which silences the noise and prevents escape of drops of water; condensation forming drips into the metal trough below, which is provided with a drain connection.

The air moistener shown in Fig. 9, is the Douglass, and while primarily for use directly in the room, being attached either to the radiator or to a riser or other pipe, is also made in a type having the same principal features for use as a humidifier in fan systems. Where so used three or four, or any required number, are placed in the air ducts and either set by hand or controlled by a diaphragm reversed valve. It is quite efficient and entirely noiseless.

(To be Continued.)

OBITUARY.

Henry W. Ellsworth.

Henry W. Ellsworth, who had been engaged in the plumbing business in Portland, Me., for 40 years, died recently at Nashua, N. H., where he had gone in search of health. He was 66 years of age. With his brother, Edward Ellsworth, he established a plumbing business in 1822 in Portland, becoming sole owner 15 years later. He was a member of the official board of the Methodist church, and a member of various Masonic bodies. He is survived by two sons, Henry W. Ellsworth, Jr., and Clarence Ellsworth, who recently became associated with him in the plumbing business, and three daughters.

John T. Webb.

John T. Webb, a master plumber of Ansonia, Conn., died at his home in that city on Wednesday, July 26, in his 75th year. He was born in London, Eng., and came to America in 1870, first locating in Derby, Conn., where he later formed a partnership with William Barry under the firm name of Webb & Barry. Later he retired from the firm, which is now operated by D. H. Kelley of that city, to enter the employ of the American Brass & Copper Co., now known as the American Brass Co., remaining with them for 25 years. He then established the business in Ansonia, which he conducted up to the time of his death. He leaves a widow and one daughter.

Thomas H. Kelly.

Thomas H. Kelly, secretary of the H. Kelly & Co., heating engineers and contractors of Minneapolis, Minn., died Tuesday evening, August 1st, in Los Angeles, Calif., where he had been for his health since last fall. Mr. Kelly was born in Minneapolis 32 years ago. He attended East High school and St. Thomas college. After graduating from the latter institution, he entered the University of Minnesota and subsequently attended St. John's University at Collegeville, Minn., from which he graduated. He thereupon became associated with his father and brother in the heating firm of H. Kelly & Co., and was active in the business until last fall when his health became impaired and he went to California. His funeral was held in Minneapolis on Monday, August 7th. His parents, a brother and a sister survive him.

Customs receipts for the fiscal year just ended were nearly $23,000,000 more than in any previous year.

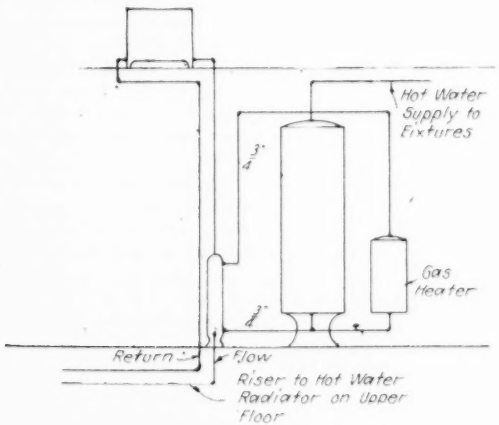
AN AUXILIARY DOMESTIC HOT WATER SUPPLY HEATER CONNECTED *to the* RISER *of a* HOT WATER HEATING SYSTEM

Notes on the Installation of an Unusual Hot Water Supply System which is Giving Satisfactory Service

By John K. Raymond

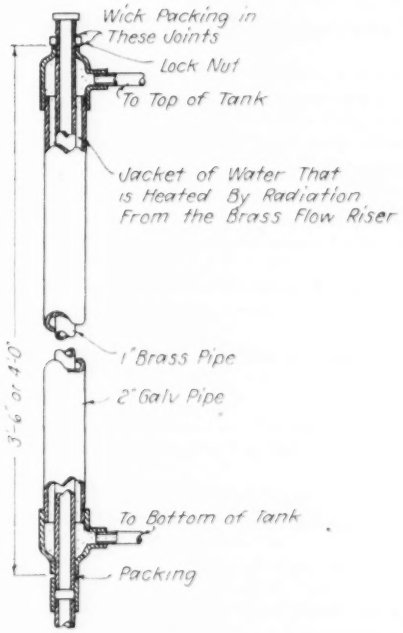
IN MANY homes having hot water heating systems it is desirable also to have something of a hot water domestic supply connected to the heating boiler. This is usually and properly done by inserting some sort of heating coil in the firebox. It sometimes happens, however, that the domestic hot water supply boiler is a considerable distance away from the heating boiler, and that it may not be convenient to run pipes from this storage tank to the hot water heater for some reason or another. It may be that the distance is considered too great, or perhaps that structural impediments are in the way, or that the owner wouldn't care to go to the expense.

In such cases the owner arranges to heat his hot water supply by some separate medium, usually a gas heater or a coal range. At the same time the owner may be desirous of having some sort of hot water domestic supply connected with his heating system, if the job can be arranged without much trouble. In such cases it is possible to heat, say, a thirty-five gallon hot water tank from one of the risers of the hot water heating system. The arrangement can be made all of pipe and within a day. The hot water supply



obtained from such a method, however, will rarely be adequate for full hot water requirements. The hot water tank can be kept fairly well filled with water heated up to 120 or 130 degrees, yet for most ordinary household requirements such a supply will be considered quite satisfactory.

Hot water at this temperature, for example, will usually be considered satisfactory for bathroom and lavatory requirements. And for sink requirements it will often prove adequate for a great many ordinary needs. But this arrangement is particularly helpful when the hot water tank has a gas heater attached to it. This is because the gas heater


Wick Packing in These Joints
Lock Nut
To Top of Tank
Jacket of Water That is Heated By Radiation From the Brass Flow Riser
1" Brass Pipe
2" Galv Pipe
3'-6" or 4'-0"
To Bottom of Tank
Packing

can be lighted whenever it is desired to have a full and really hot supply of water such as for laundry purposes, dish washing, or for baths; yet there is a considerable saving of both time and gas expense, when the hot water tank is already at least half heated up. Furthermore, once the hot water tank has been heated up by the gas heater, it will be found that, by the use of the piping arrangement in connection with a hot water heating riser, the water in the tank can be kept good and hot for a considerable period.

This situation is easily realized when it is remembered that even with the water in the tank cold, it will be readily heated up after a few hours from the heating riser. Then when it is considered that if the water in the tank is first

well heated by the gas heater, it will be seen that the heating riser does not have much of a call made upon it to keep the water in the tank fairly well heated. Another advantage of this method is that it keeps the domestic hot water tank heated during the night, so that in the morning the house-owner will find a moderately good supply of warm water waiting for him in the bathroom or elsewhere.

The arrangement is made according to the drawing as shown. The outside pipe is two-inch galvanized. The part of the heating riser running through this two-inch is of brass. The tees used are two-inch by one-inch by three-quarter inch. The heating riser for all practical purposes runs straight up to its radiator. But as the water passes through this riser some of its heat is radiated into the small reservoir of water which is contained within the two-inch pipe. This water then begins to circulate the same as that in a water-back. The upper ¾-inch branch of the tee is connected to the top of the hot water tank, and the lower branch is connected somewhere to the bottom of the tank. There will be results from this method, of course, only when the water in the heating system is up to a fairly high temperature, that would be from 140 degrees up; yet this arrangement in practice has been found to give really gratifying results to the homeowner during many periods of the winter season.

NEW WAYS OF BURNING COAL.

By F. H. Mason.

THE high price of fuel, obtaining pretty universally since the war, has worked a great hardship on people of limited means, and undoubtedly has retarded many industries, particularly the iron and steel and the transportation industries, in their return to normal conditions; but present indications seem to point to the high price of fuel being likely to become a benefit to mankind in the end, for it has caused fuel consumers to stop and think.

In pre-war days, when fuel was cheap, manufacturers were prone to shovel coal recklessly into their boilers and furnaces, and a considerable proportion of it went up the chimneys in a partly consumed state, resulting in smoky, unclean, unhealthful cities. Smoke was viewed as an indication of industry, and a smoky city became a desirable one to live in, because employment was readily obtainable. I lived in a city where, only a few years ago, a man was elected by a large majority as mayor, mainly on the slogan of "The smoke-stack candidate." If he were elected he promised to bring fresh industries to the city, and industries, be it noted, necessarily were supposed to mean smoke.

With the universal high price of fuel this condition is being changed. Instead of smoke being considered as a synonym of industry, it now is looked upon as a visible and unpleasantly odorous manifestation of the incomplete combustion of fuel, and, consequently, of waste. People are beginning to realize that the old way of burning coal was the wrong way, and, just as the open grates of our forefathers have had to give place to central heating systems, so will the old way of burning coal have to give place to better and more scientific methods.

In industrial operations, fuel is burned either to produce heat directly, as in many metallurgical and chemical operations, or to produce heat for the generation of steam to provide power. In neither instance is smoke necessary. In many metallurgical operations, such as the smelting of iron and other ores, it long has been the practice to carbonize the coal, or convert it into coke, before it is used, because it is more desirable in that form, but it is only within recent years that it has become the common practice to save the gas and other by-products, such as tar; benzol, which is used as a motor fuel; and ammonia, which is used for the fertilization of soils. Before the war, the greater proportion of the coke made in America was made in what are known as beehive ovens, and only the coke was saved; the other valuable constituents of the coal were discharged into the atmosphere, and polluted it. Today, the greater proportion of the coke is made in by-product ovens, and all the constituents of the coal are saved and utilized.

This method of burning coal, that is, by first splitting it up into coke and gas and burning each separately, now is finding considerable application in other than metallurgical operations. The chief object of burning coal industrially is for the generation of power. In England, where distances between industrial centers are comparatively short, a series of power stations is being established, where coal is partly carbonized. These stations usually are situated at or near coal-mining centers. The tar, benzol, and ammonia, are saved, and the gas is either burned under boilers for the generation of electricity, or, if local conditions warrant, part of it, and in some cases all of it, is piped directly to consumers, to provide fuel for internal combustion engines and for heating purposes. In carbonizing the coal, the whole of the gas is not removed, and the residual coke is quite different from the coke produced at gas works and metallurgical plants. It still contains a considerable amount of gas, ignites readily, makes a hot smokeless fire, and is an excellent domestic and industrial fuel. The excess of coke, if such there be, is burned under boilers, to provide steam for the generation of electricity.

The advantages of burning coal in this way are many. Electricity is generated near the coal mines and conveyed over considerable distances, thus the cost of transporting fuel is saved. Steam railways are being converted into electric railways, and these get their power from the central stations. In this way much energy is saved, because a considerable amount of the energy of the ordinary steam locomotive is consumed in transporting the fuel and water necessary for its own propulsion. Valuable by-products are saved, and last, but by no means least, the smoke nuisance is practically eliminated.

On this continent, where distances between industrial centers usually are much greater than in the old world, and consequently where the piping of gas often is not feasible, attention is being turned to the burning of coal in a pulverized form. The coal is dried, ground finely, and blown into the furnace through a pipe, or series of pipes, known as burners, by a fan. By carefully regulating the supply of air and of coal dust, complete combustion is effected, and little, or no, smoke results. The initial cost of installing individual coal-pulverizing plants has retarded the adoption of this method of burning coal, but recently this has been overcome by the erection of central coal-pulverizing plants. Steel bins for safely storing powdered coal are now manufactured, and closed, steel motor-trucks are made, in which the powdered coal is conveyed directly from the pulverizing plants to the consumers' bins. In this way the powdered coal is handled almost as expeditiously as fuel oil. Small coal pulverizing plants, too, are being put on the market in considerable quantities. These are made in sizes to suit the needs and pockets of practically all classes of consumers.

These new methods of burning coal, while they entail some initial cost, in the end effect a great saving, because they practically eliminate waste, and it is pretty certain that they will become more and more commonly adopted within the next few years. An incidental corollary, but one that will be much appreciated, will be cleaner, brighter, and more healthful cities.

Ezra J. Hall has opened a plumbing and heating business at Sandy Hook, Conn.

O'Brien & Taylor have opened a new plumbing business on Main Street in Winchester, Mass. Both have been engaged in business in Winchester and Woburn, Mass.

QUESTIONS & ANSWERS

This department is a clearing house for ideas and is open to every reader of "Domestic Engineering." Problems sent in are replied to at the earliest possible moment by "Domestic Engineering," and this department can be made more valuable if readers themselves will help the man who needs assistance. Read the questions and answers. If you have had similar problems, or know from experience how the faults can be remedied, do not hesitate to send in your comment or criticism. It will be some satisfaction to you to know that you have helped a fellow craftsman and a pleasure for us to pass on the data. "Every man owes some of his time to the upbuilding of the profession to which he belongs."

FIGURING RADIATION FOR HEATING A GREENHOUSE.

Editor, "Domestic Engineering":—The accompanying sketch shows a greenhouse, for which I wish you would kindly figure the radiation by "Mill's Rule," and also by the B. t. u. loss method. I have figured it both ways and get about 1,000 sq. ft. more radiation by Mill's rule than by B. t. u. loss method and am unable to locate my mistake. The greenhouse is 75 ft. long by 36 ft. wide, with a 7 ft. side wall. Side walls are composed of 3 ft. of concrete 10 inches thick, and 4 ft. of glass. There is a distance of 16

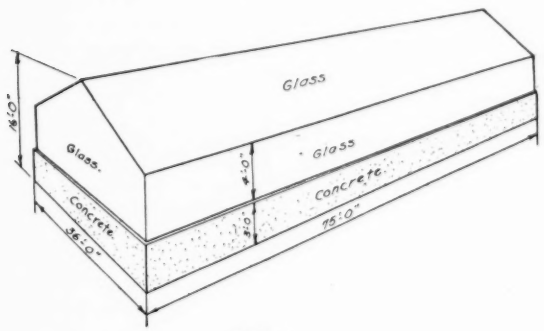


Fig. 1.

ft. from floor to gable of roof. The gable ends and the entire roof are solid glass.

We are using 1¼-inch pipe coils under benches which are 2½ ft. high, at a pressure of 3 to 5 lb., vacuum return, allowing 300 B. t. u. per sq. ft. per hour. Will desire to hold temperature of house at 60 degrees in zero weather.

We are contemplating using thermostatic control on coils to hold house at desired temperature. I would be glad to have your opinion on this also.

Oklahoma. W. E. R.

The Mills, or a similar rule, is not the proper one to use when estimating the amount of radiation required to heat a greenhouse. Rules of this character take into consideration the wall and glass exposure of a room or building; also, the cubical contents, in order to estimate a certain air change per hour. The conditions of greenhouse heating differ from those of any other type of building. Night temperature is figured for a greenhouse. Except a house is poorly constructed the glass surface alone is figured as a basis for determining the number of sq. ft. of radiation required. For quick estimating it is usual to determine the area occupied by the house (in this case 36x75 ft.) and to this area add one-third to cover the pitch of the roof and the glass in the ends above the eaves. If there is a belt of glass running along the sides and across the ends this should be measured and added to the above.

Fig. 1 illustrates the outline sketch submitted with the above letter to which we have added certain data to designate more clearly the conditions of the work. Following the rule suggested, we would estimate the required heating surface as follows:

$36\times75=2700$, $2700+1/3=3600$, the sq. ft. of glass in the roof and ends. As a 4-ft. belt of glass surrounds the house we add $36+36+75+75\times4$ or 888 sq. ft., making a total of 4,488 sq. ft. of glass.

To maintain a night temperature of 60 degrees with steam at from 3 to 5 pounds pressure, we should provide 1 sq. ft. of radiation for each 5 sq. ft. of glass, therefore, $4,488\div5=897$ sq. ft. of radiation required.

How well this rule applies is shown by considering the problem on a heat unit basis. Each sq. ft. of glass will cool 1 B. t. u. per hour per degree difference between the temperature of the house and that of the outside air. With 60 degrees inside of the house and zero outside the number of heat units cooled per hour is $60\times4,488$ or 269,280 and $269,280\div300$ (the B. t. u. given off by a pipe coil per sq. ft. per hour)$=897$, the sq. ft. of coil surface required.

If 1¼-inch pipe coils are used, we estimate 2.3 lineal ft. per sq. ft. of radiation. $897\times2.3=2,063$ lineal ft. of 1¼-inch pipe coil required.

SUMMER CARE OF HEATING BOILERS.

Editor, "Domestic Engineering":—A question came up the other day in regard to a hot water heating plant, "Would it be a good practice to leave the system full of water or drain during the summer months when boiler was not in use?" Will you kindly give me your opinion in regard to this point?

Oklahoma. H. A. G.

The summer care of heating boilers is a subject that has been much discussed. We think that it is generally recognized that it is best to keep a hot water heating system full of water during the summer, and in the fall before the fire is started this water should be drawn off and the system refilled with pure, clean water.

The attention to the boiler is of even greater importance than the filling or draining of the heating system. After the fire has been allowed to die out and the system put out of service the ashes should be thoroughly cleaned from the grate and ash pit. The smoke pipe should be taken down and cleaned and, if the cellar is damp, put in a dry place where it will not gather moisture and rust. All doors on the boiler should be left open or better still removed from

the boiler and after being cleaned should be given a coat of black asphaltum varnish. It is well also to use the same material and paint all exposed surfaces of the boiler. The soot also should be thoroughly removed from inner surfaces.

Attention of this character will double the life of the apparatus and increase its efficiency.

PROBLEMS IN ROUGHING-IN PLUMBING.

Editor, "Domestic Engineering":—Being a subscriber and reader of your valuable paper for several years, I have an incident that might be of interest to some of your readers. I am doing the plumbing in a building at the Tuberculosis Hospital eight miles from the city. There are two of these buildings under construction which are one-story, brick, hollow tile and concrete, being the material of their construction. The man who drew the "picture," for you cannot call it a "plan," calls himself an architect, and we have quite a contention regarding standard sanitary laws. This supposed architect claims a 2-inch vent is not large enough to protect the seal of one water closet. I have made a few lines on the accompanying sketch, Fig. 1, giving sizes of main soil line and direction. There are quite a number of small fixtures, which I have not attempted to show as there is no contention regarding them. This main had to be carefully laid as we could get but ⅛-inch fall per ft. There is about 100 ft. between points B and C. A is about twenty-five ft. from B. The wall shown is a retaining wall being about 15 ft. from the outside wall, there being about 8 ft. of a runway to meet a tunnel to the other building.

Fig. 2 shows in a rough way the contention. Two ¼ bends and a 4 by 2-inch tapped tee make up the length shown with the 4 by 2-inch tapped tee turned a little to the side, though not 45 degrees. The offset shown is to get into partition above floor line. The turning to the side a little was to miss a 4-inch local vent which is in center of bowl. The 2-inch vent has four 45-degree ells in its length, and receives the 1¼-inch vent from a tub and lavatory before passing through roof. Pipes passing through roof here **do not have to be increased** in size; nothing smaller than 2 inches, though, is allowed.

I was careful to use only 45-degree fittings, so that any

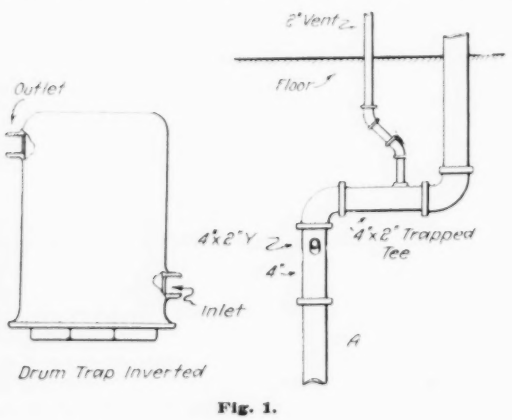


Fig. 1.

rust would fall in 4-inch line, and be worked out. I have the Chicago, Ill., Dayton, O., Flint, Mich., and other codes all of which support my contention that two-inch is ample for this particular closet. There are four other closets, two at or near B and two near C.

The traps used for the bathtubs are of the C. I. drum trap pattern. I inverted same as they are below floor line, so they can be easily cleaned, and if they should leak at gasket, it is readily seen. I explained that if they leaked sewer gas, being turned the other way, no one would be the wiser. These traps are all vented close to the outlet. Is not my theory correct? Am I not sustained by all sanitary rules or laws?

Illinois. A. T. D.

Studying the plan view, Fig. 1, which shows the house drain, and the locations of the soil stacks we would state that the soil stacks at B and C should run full size up to

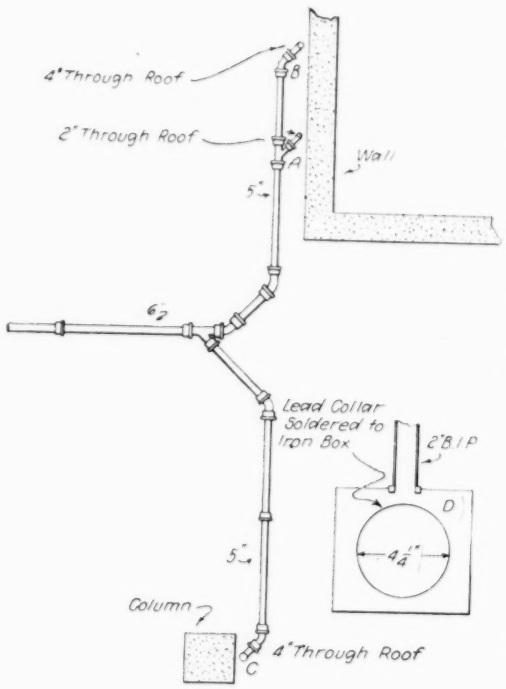


Fig. 2.

and through the roof to insure perfect ventilation of the house drainage lines. The 4-inch soil branch at A, if it takes only one or two closets and does not run higher than the first floor, may ordinarily be permitted to be vented by 2-inch pipe through the roof. But if it runs higher than first floor it should be continued full size through the roof.

Regarding the drum trap, we see no reason why your method of reversing same and having the clean-out cap at bottom instead of at top, should not be perfectly satisfactory. The point you raise about leakage of sewer gas from screw cap, if cap is on top is quite sound. A water-sealed cap is safer that way than one that is not water-sealed.

AN INTERESTING QUESTION ABOUT PRESSURES IN PRESSURE TANKS.

Editor, "Domestic Engineering:"—We would like to receive your opinion on the following problem:

Two pressure tanks, one with a capacity of 80 gallons and one with a capacity of 220 gallons, are both half filled with water, as indicated in Fig. 1. Air is forced into both tanks until a pressure of 40 lbs. is registered. Three gallons of water is then drawn from each tank.

Will the pressure be the same in both tanks after this quantity of water has been drawn?

Alberta, Canada. T. B.

It seems quite safe for us to say "No." The resultant pressures will be different. The pressure in the smaller tank will be lower than that in the larger tank after 3 gallons have been drawn from each.

We do not have to prove the above statement by a

formidable array of mathematical formulae. We will do it as Euclid would probably have done it if such a question had been put to him. He would take an extreme case to emphasize the soundness of his reasoning.

Let the smaller tank be 6 gallon capacity, and the larger one 1,000 gallon capacity. Pump each tank half full. Pump

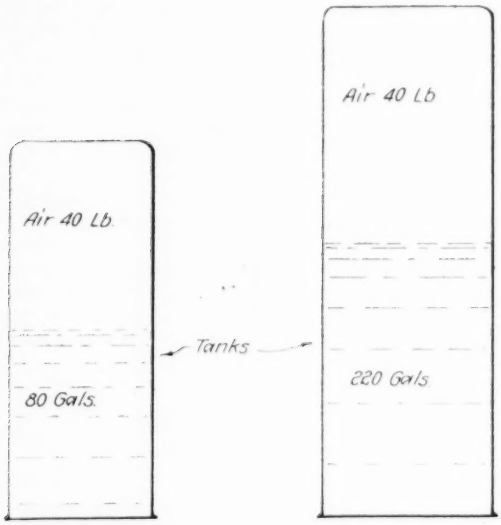


Fig. 1.

up a pressure of one atmosphere in each tank, or 15 lbs. per sq. inch. Now draw 3 gallons from each tank, and the smaller tank is empty. The 3 cubic ft. of air in that tank has been doubled by expansion, which means that it has returned to atmospheric pressure exactly.

But draw 3 gallons of water from the larger tank, and the increase in volume of that air compared to its original volume will be so small, only 3 in 500, that the pressure drop will be practically nil. It certainly cannot be as much as in the small tank. All the 500 gallons would have to be drawn off to bring the air pressure in the big tank down to equal that in the small tank when 3 gallons have been drawn from it.

This is a very interesting topic. It has considerable bearing on the capacities and pressures of pneumatic water storage tanks, so commonly installed in water supply systems nowadays.

TROUBLE WITH SEWER GAS AT KITCHEN SINK.

Editor, "Domestic Engineering":—I have been a reader of your valuable paper for the past ten years, and have never had occasion to write to your Questions and Answers department, but I am up against a deep problem now.

In Fig. 1 you will observe a rough sketch of a sink connected to the sewer with about 20 ft. of 1¼-inch galvanized pipe, and a 1¼-inch N. P. P trap. The owner complained of sewer gas coming through the trap, so I took the P tub trap off and put on a 1¼-inch anti-siphon P trap. He continued to complain of gas, so then I cut the pipe running under the sink, put in a tee with a street ell, and ran this outside the house and up through the roof of the shed. I told him he would have to take this pipe down in the winter time and clean out the white frost for it would plug up, but it does not seem to do any good. Even this summer, he says, that every once in a while the sewer gas comes back just the same. There are no other fixtures connected to the sewer. Why should gas come back through the water in trap when it has free access to the outer air?

Minnesota. C. H. O.

We can easily see how sewer gas could get into the house through the P sink trap when it was put in first without the back-vent pipe. Then the trap could easily become unsealed by siphonage. No doubt the trap gurgled then, as it was siphoning out.

It was then also a very easy matter for the seal of the unvented P trap to be forced inwardly toward the fixture, should a condition of air compression ever exist in the sink drain pipe, due to water running into it from other fixtures; or due to rain water running into the house drain, filling it and compressing the drain air back against the trap seal.

Both of these undesirable conditions are unsanitary and dangerous, as both may permit sewer gas to flow freely into the building.

You made a logical change when you removed the P trap and installed an anti-siphon trap in its place.

By doing so you removed danger from siphonage. But you could not thus remove all danger from back air pressure. However, you finally adopted the well-known remedy that cures both of these ills, namely the back-vent pipe. It protects the seal from siphonage and also from back-pressure by maintaining an even air pressure in the waste pipe back of the trap.

If the sewer gas is still perceptible, after installing this air vent, you must look for the trouble elsewhere than at the sink trap. The best thing to do now evidently is to apply a smoke test to the entire plumbing system and see if there are no sewer gas leaks somewhere in it.

If the smoke test proves the system to be leaking, you can see the leaks, and have them repaired. If it proves the system gas-tight, then the trouble is not with the plumbing system, but elsewhere. Just where it could then be, we can-

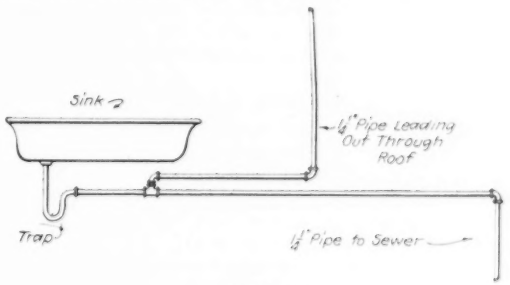


Fig. 1.

not say. The premises would then have to undergo a complete sanitary inspection.

Perhaps there is an old sewer with an open end under the kitchen floor.

Perhaps there is a dead and a decaying mouse or rat inside the wall back of the sink, or under the kitchen floor.

But whatever it is, you or the owner can find it, if you go about the investigation right. We think you should investigate the dead rat and old unused sewer theory, after you have proved the plumbing perfectly tight by test. But use the smoke machine test under a 1-inch water column smoke pressure in the drain. Don't "fool" about the premises with an ether or peppermint test. It means little or nothing. The smoke test is the most reliable test and should be applied in this case.

Two Million Tons of Coal a month will be brought into the United States from England and Wales as soon as ships are available, Chairman Lasker of the Shipping Board announced this week after a conference with President Harding. Most of this coal will go to industries in New England and along the Atlantic coast. Arrangements have already been made by the Shipping Board to bring in a million tons a month after September 1.

POINTS *in* DISPUTE BETWEEN MINERS *and* OPERATORS

Coal Bureau of the Chamber of Commerce of the United States Issues Interesting Statement Regarding Present Coal Situation and the Main Differences Between the Miners and the Operators

THE addition of 100,000 men of equal producing efficiency to those now mining coal, if favorable conditions obtain, would mean that the bituminous coal needs of the country would be met, according to the Coal Bureau of the Chamber of Commerce of the United States, which has just issued a detailed review of the fuel situation.

The bulletin was sent out to the membership of the Chamber for the purpose of informing it as to coal supplies and the outstanding issues involved in the controversy between the operators and the miners.

The Coal Bureau bases its opinion regarding the number of men required to bring about a return of normal bituminous production on figures showing that with 610,000 men on strike and 185,000 at work the mines produced, in the week ending before the shopmen's strike began, 5,337,000 tons of coal as against the country's weekly requirements of 8,100,000. At the same time the Bureau calls attention to the fact that production has fallen off in the last three weeks due to the railroad strike and that any prediction having to do with coal output must take into consideration the railroad situation.

The Anthracite Coal Situation.

As to the anthracite situation the Bureau says that, as it is customary to operate anthracite mines in summer to build up winter stocks, the shortage is causing concern and that some substitution of bituminous for anthracite is likely. There are no reliable figures, says the Bureau, as to the amount of anthracite stocks on hand.

There are positive indications, says the Bureau, that certain industries in various parts of the country have reached an end of their bituminous resources.

A development of the strike which has caused much concern, it is declared, is the interruption of the delivery of coal at Lake Erie ports for shipment to the northwest. It is pointed out, however, that the requirements of the northwest can be met if, beginning September 15 or possibly as late as October 1, coal can be delivered in volume of at least 1,000,000 tons a week until cold weather closes navigation.

Question of Wages Not Main Issue.

In its explanation of the issues involved in the strike, the Coal Bureau declares that the question of wages is not the main issue and that the chief point at issue is the difference over the basis upon which the operators shall deal with the miners both as to wages and conditions of work.

"From the beginning," says the Bureau, "the United Mine Workers have contended for negotiations upon a national basis. The method for carrying this out is agreement between operators and mine workers as to wages and conditions in what is known as the Central Competitive Field, comprising the mining districts in Western Pennsylvania, Ohio, Indiana, and Illinois. Wages and conditions in other fields throughout the country would be adjusted in accordance with the agreement for the Central Competitive Field. The operators, on the other hand, in view of different mining and living conditions, contend for separate working agreements by districts, or at most by states.

"The mine workers have refused and are still refusing either to confer or to consent to arbitration upon anything less than a national basis. This is evident from reports as to efforts by governors following the appeal to them from the President to bring about conferences between mine workers and operators by states. The mine workers, wherever this is being attempted, refuse to confer because of the stand made by the United Mine Workers of America, for a national basis of adjustment.

Miners for Complete Unionization of Coal Industry.

"Closely related to the desire of the United Mine Workers to preserve the Central Competitive Field as a basis for national wage agreements is the policy of the United Mine Workers in urging complete unionization of the coal industry.

"Another factor in controversy, which holds higher place in importance with both parties than the wage schedule, is what is known as the 'check-off.' This is an arrangement whereby union dues and all union assessments are collected from the miners by the operators through the simple process of withholding such dues and assessments from the pay envelopes. The contention of the operators is that this arrangement has enabled the miners to accumulate larger sums than they could otherwise have accumulated, which have been used for the unionization of the industry and the maintenance of strikes. The miners contend that the 'check-off' is a legitimate means of collecting dues and is based on long practice which originated in England.

"There are no figures available showing the total income of the United Mine Workers of America through the mediunt of the 'check-off.' According to statements of Mr. Brophy, President of the Central Pennsylvania Union District, at congressional hearings, and figures for the Illinois, Kansas, Missouri, Oklahoma and Arkansas districts, $3.00 per month is approximately the amount paid by individual members. Assuming the number of paid-up members of the United Mine Workers to be 425,700, which were the figures of 1921, this would represent an approximate income of the organization per year of $15,500,000. Mr. Brophy's figures indicated that of the amount collected in his district, approximately 45 per cent was paid out by the local unions as wages to check weighmen, employed by the unions to verify the weights of coal paid for by the ton. The same basis of calculation if applied to the entire organization would require a reduction from total income of approximately $7,000,000. The organization's income is also drawn upon for out-of-work relief and death benefits.

President Harding's Proposal.

"President Harding's proposal at the Washington Conference was that the miners should return to work at the March 31, 1922, scale, pending a readjustment of wages. Certain of the operators who did not accept the President's proposal to arbitrate the wage scales suggested the miners

return on the lower wage scale of November, 1917, this being the scale set by the Fuel Administration during the War.

"It is difficult to establish a basis for comparison of wages, not only in the coal industry itself, but with other industries. In the anthracite field, on March 31st, just prior to the strike, the wages for inside day labor averaged $4.76 per eight hour day. The present demands of the miners in the anthracite field which were ratified by the conference of the United Mine Workers of America at Indianapolis, February 14, 1922, call for a flat increase of $1.00 per day over the above rate. In the central competitive bituminous field the wage rate for team drivers, frequently used as a basic wage typical of average day labor, was $7.50 for a day of eight hours just prior to the strike.

"The operators contend that wages should be reduced in the coal industry in keeping with reduction in other industries. The miners contend that wages have not been raised in the coal industry above a proper wage, and also take issue with the argument that there should be uniform "deflation" of wages. The miners further contend that their rate of daily wages is no measure of annual earnings, as their occupation is intermittent and irregular."

THE PROPER METHOD OF INSTALLING ALL TYPES OF GAS-FIRED WATER HEATING EQUIPMENT.

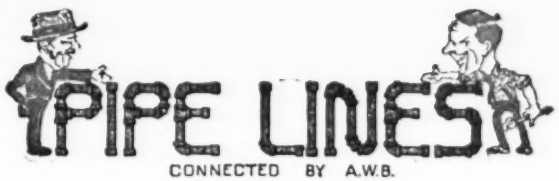
(Continued from Page 276.)

size than the outlet connection of the heater. A union should be placed on the hot water line near the heater, and beyond this a check valve for the purpose of preventing "reaction" or flashing of the gas when a cold water faucet is closed.

5. Condensation. In some cases where the heater is in continual use, condensation becomes so heavy that it overflows the pan of the heater. This condition may be eliminated by removing the plug in the opening in the pan of the heater and making a permanent drain connection from it.

6. Location. The heater should be placed at a point nearest the fixtures from which hot water will most frequently be drawn, but at the same time it must be placed close to a good flue. It is of greater importance to shorten the flue connection than to provide convenience in the running of gas and water lines; for, if the flue connection is of great length, the hot gases necessary to produce proper draft are cooled in the travel through the long length of pipe and the flow becomes sluggish, frequently choking the flue and connection and causing carbonization of the burners and coils and low heating efficiency. The location of the heater in relation to the flue being determined, the next point to be considered is to place it as close as possible to the fixture from which hot water will most frequently be drawn. In a residence, this is usually the kitchen. This is done to reduce the length of time elapsing from the time the faucet is opened until the hot water reaches the fixture, and also to reduce the heat loss by radiation which is in direct proportion to the length of the pipe and the number of times the water is drawn.

General Business Conditions are on a sure road to normal, according to a canvass of about sixty-five industrial leaders in all sections of the country made by the purchasing department of the Western Electric Company. The company, through a questionnaire, carried on an investigation in order to familiarize itself with every trend in the world of commerce. The result discloses virtually universal optimism among manufacturers and sellers of raw materials. Their collective opinion, given at a time when the usual Summer dullness might adversely influence optimism if it were only temporary, it is pointed out, is significant.



IFFING.

If this or that were thus or so,
Oh, wouldn't it be clever?
But "ifs," alas! won't make it so,
Though we should "if" forever.
Yet, while "ifs" cannot help a mite,
We'd all be less contented,
And life would hold far less delight
If "iffing" were prevented.

NIX W., Chicago.

A FABLE.

Once upon a time there was a plumber. He did good work, used good materials and served the best he knew how. And the people praised this plumber, never complained about his prices, and paid their bills promptly. He grew old, and rich, and honored. And as people passed his home they pointed and said: "There lives a master, for he has brought health, wealth and happiness to us."

AESOP II, Greensburg, Pa.

I WONDER?

I wonder what a chewing gum manufacturer says when he steps on a wad of gum? BING, Detroit.

JUST THAT.

Son: "What's an architect, Pa?"
Pa: "A fellow who tells us contractors how to do things he can't do himself." MIKE QUINN, Scranton, Pa.

A lot of folks have a good aim in life, but they don't pull the trigger. I. L. G., Chicago.

MORAL.

Do you remember "A Sad Reality," back in the July 22nd issue? It was about how the "subs" get beautifully trimmed. As I read those verses I thought, "Don't be a 'sub.'" And I also thought this jingle:

To be a sub is to be a dub,
A dub that's really funny.
Upon my word, have you ever heard
Of a sub that's making money?

A. D. B., Kirksville, Mo.

NO HALF COMPLIMENTS.

Little Johnnie had moved into a new neighborhood and this was his first day in the new school. The teacher asked, "Johnnie, have you studied multiplication?"

"Yes, mam," came the answer.

"Then," said the teacher, "we will see if you are as far along as our class. How much is three times four?"

"Twelve!" shouted the new pupil.

"That is very good, Johnnie," smiled the teacher.

"Very good?" exclaimed Johnnie. "Hell's-bells, it's perfect!" F. S. K., Cleveland, Ohio.

Motto for telephone girls: Hear nothing, see nothing, know nothing. FELIX, New York.

HE WAS SO IGNORANT.

He thought "a close corporation" meant the one he worked for, for said he, "I've been here ten years and they ain't raised my salary yet." R. L., Red Wing, Minn.

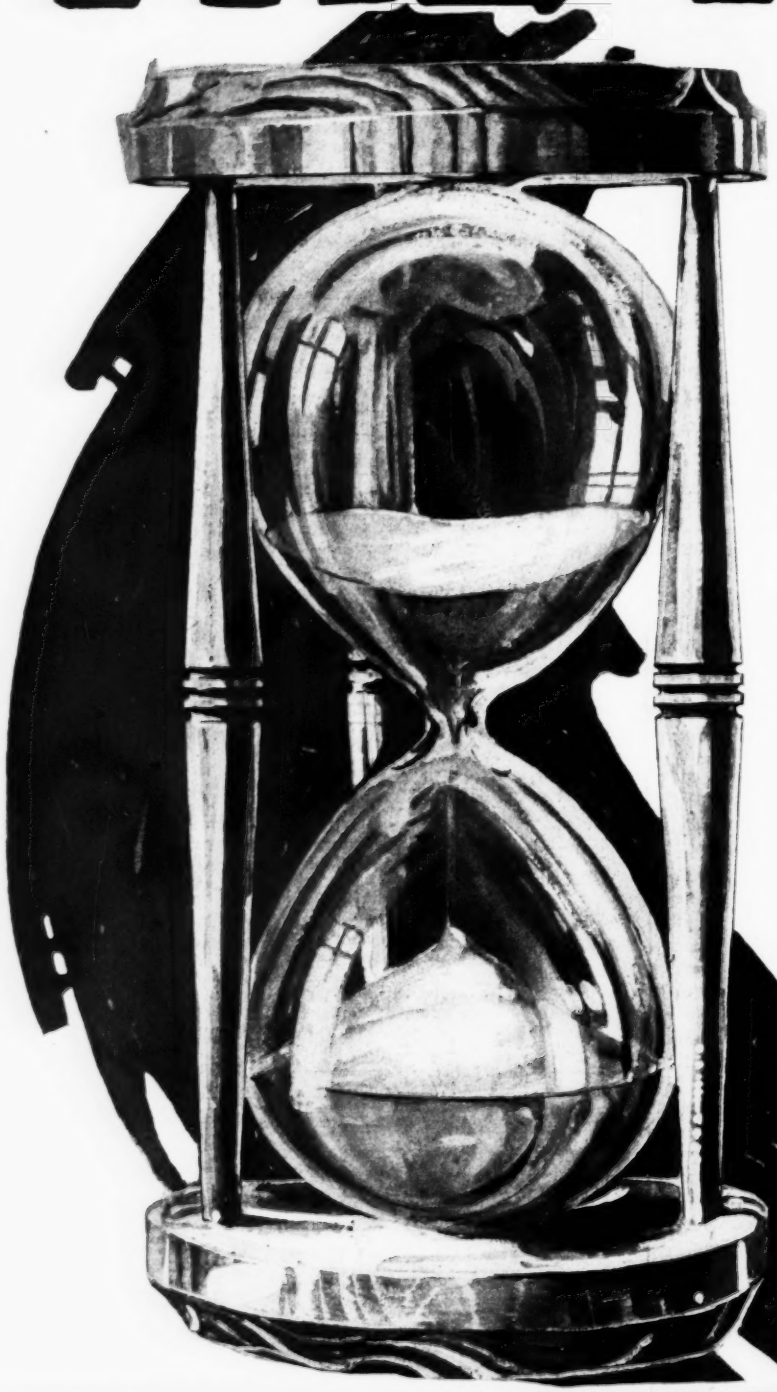
WHEN IS A DOOR NOT A DOOR?

Pat: "What's the difference between a hair dresser and a sculptor?"
Mike: "Faith, an' I don't know."
Pat: "One curls up and dyes, and the other makes faces and busts." THE OFFICE GIRL, Peoria, Ill.

I was aboard a crowded truck one morning during the street car strike in our village. A young man, with his girl, stopped us at a corner and, hailing the driver, inquired, "Can we squeeze in this truck?" The driver answered, "Sure you can, if the rest of the passengers don't object."

NOW YOU SEND A BETTER ONE. A. W. B.

THE TEST



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Perfect Siphon Air Valve
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Russell Valves have been standing the test of time for over thirty years. They stand by force of perfect operation. There can be no air left in radiators equipped with Russell Valves, nor can water or steam escape.

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AMONG THE WHOLESALERS AND MANUFACTURERS

CENTRAL SUPPLY COMPANY BUILDS NEW WAREHOUSE.

The Central Supply Co., of 210-238 South Capitol Avenue, Indianapolis, Ind., is building a new pipe warehouse, 172 by 222 ft., of steel construction. The new building, which is now nearing completion, is located at Merrill Street and Kentucky Avenue, within a reasonable distance of interurban and steam road freight houses.

ENLARGING ITS FACTORY EQUIPMENT.

The Monitor Bi-Loop Radiator Co., of Lancaster, Pa., has recently purchased a large amount of equipment for its factory.

TO MANUFACTURE WATER FILTERS.

The Twin Filter Co., of Buffalo, N. Y., is making plans for the installation of equipment for the manufacture of water filters.

SELECTING SITE FOR A VALVE PLANT.

The Coy Valve Co., of Chehalis, Wash., which was recently organized with a capital of $500,000, is selecting a site for the erection of plant for the manufacture of valves.

APPOINTED SALES AGENTS FOR E. STEBBINS MFG. CO.

The E. Stebbins Manufacturing Co., of Springfield, Mass., has just appointed Phillips & Murphy, of Indianapolis, Ind., as sales representatives in the central western states.

INCREASING THE CAPACITY OF ITS PLANT.

The Royal Brass Mfg. Co., of Cleveland, O., has recently increased its plant and added new machinery and equipment which will enable the company to increase its output 25 per cent.

ADDS NEW DEPARTMENT TO ITS PLANT.

The Niagara Manufacturing Co., of 1042 Ridge Avenue, Philadelphia, has just added a new department to its plant for the manufacture of closet hinges.

SOLE DISTRIBUTORS FOR OPTIMUS MFG. CO.

The Optimus Sales Co., of 12 State Street, New York City, has been appointed sole distributors for the Optimus Manufacturing Co. of Sweden. This company's products were formerly handled by the H. W. Peabody Co., of New York City. The Optimus Sales Co. has just appointed E. S. Brownfield and Osey Austin as representatives to cover the following states: Ohio, Indiana, Illinois, Kentucky, Missouri, Iowa, Mississippi, Nebraska, Kansas and Texas.

COMPLETING LARGE NEW FOUNDRY.

The Harrison Safety Boiler Works-Cochrane Corporation, of Seventeenth and Clearfield Streets, Philadelphia, is completing the erection of a foundry, 100x352 ft., at Earnest Station, Norristown, Pa., to replace the plant destroyed by fire some time ago.

OPENS BRANCH OFFICE IN KANSAS CITY, MO.

The Fort Wayne Engineering & Manufacturing Co., of Fort Wayne, Ind., has opened a new branch office and showroom at 1508½ Main Street, Kansas City, Mo., in charge of L. A. House, as district manager. The new branch will serve the following states: Kansas, Missouri, Arkansas, Texas, Oklahoma, and Louisiana. Mr. House was formerly district manager for this concern, with offices in Boston, Mass.

WESTERN TRADE GOLF ASSOCIATION TO MEET AT RIVERSIDE GOLF CLUB.

The Western Trade Golf Association will hold its regular monthly tournament on Tuesday, August 15th, at the Riverside Golf Club, Riverside, Ill., one of the finest courses near Chicago. The usual qualifying round will be played in the morning, and the eighteen hole play in the afternoon for the Association cup, flight and other prizes, for which all members will have a chance to compete. The automobile route from Chicago is west to Desplaines Avenue, and south on Desplaines until the Club is reached. On the Burlington Railroad trains leave Union Station, Jackson and Canal Streets, Chicago, at 7:30, 8:25, 9:47, 10:35, and 11:35, all in the morning, and 12:22 p. m. (Chicago Daylight Saving Time).

COMPARATIVE FIGURES ON THE PRODUCTION OF CAST-IRON PIPE.

The Department of Commerce in Washington, D. C., has this week issued its fourteenth census on the manufacture of cast-iron pipe, containing comparative figures on production for the years 1914 and 1919. The report says in part:

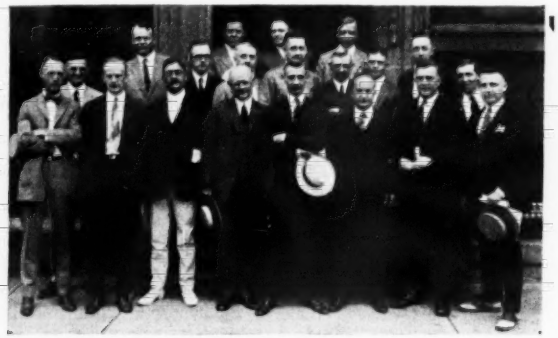
"In 1919 there were 59 establishments in this industry, and 7 establishments in other industries reporting cast-iron pipe products. Of these, 18 establishments manufactured bell-and-spigot pipe, 15 flanged pipe, 3 culvert pipe, 22 gas and water pipe fittings, and 40 reported the manufacture of soil and plumbers' pipe and fittings.

"The tonnage production of cast-iron pipe and fittings was 702,554 tons in 1919 as compared with 1,120,721 tons in 1914, a decrease of 37.3 per cent; but in value these products increased from $25,979,192 in 1914 to $48,514,581 in 1919, an increase of 86.7 per cent. The figures show an average ton value of $69 for 1919 as compared with $23.20 for 1914. Considering the different kinds of pipe products, there was a decrease of 54.7 per cent for the period 1914-1919 in tonnage of bell-and-spigot pipe, with an increase of 15.5 per cent in value; a decrease of 9.9 per cent in the tonnage of flanged

pipe, with an increase of 143 per cent in value; a decrease of 48.5 per cent in culvert pipe, with an increase of 39.6 per cent in value; and a slight increase in tonnage of pipe fittings, namely, 1.8 per cent, with an increase of 212 per cent in value. Soil and plumbers' pipe and fittings increased 20.3 per cent in tonnage and 230 per cent in value. The figures show fairly uniform increases in unit values for the various classes, namely, bell-and-spigot pipe $20 per ton in 1914, to $51 in 1919; flanged pipe, $27 in 1914, $72 in 1919; soil and plumbers' pipe and fittings, $29 in 1914, and $80 in 1919."

AMERICAN BLOWER CO.'S BRANCH MANAGERS IN ANNUAL CONVENTION.

The branch managers of the American Blower Company, of Detroit, Mich., held their annual meeting at the company's general offices and factory in that city, July 24, 25 and 26. The meeting was held for the purpose of discussing sales



American Blower Co.'s Branch Managers in Annual Convention.

plans and business methods in connection with the distribution and installation of the company's products. Among the entertainment features of the meeting was an interesting golf tournament.

PERSONAL MENTION.

F. H. Knapp, general manager of the Pittsburg Water Heater Co., of Pittsburgh, Pa., since 1916, was elected president of this company at a meeting of its Board of Directors, held last week at the company's general offices in Pittsburgh. Mr. Knapp has been identified with the plumbing industry as a manufacturer for a number of years and has a large circle of friends in the trade.

F. H. Knapp.

Edward J. Bredehoft, who was connected with the United Lead Co., of New York City, for sixteen years, and for the past year has been a manufacturers' agent in Greater New York, has now become associated with the Whitlock Coil Pipe Co., of Hartford, Conn., with offices at 149 Broadway, New York City. He will be in charge of its heating specialties department.

C. P. Wadley, president of the Excelso Specialty Works, of Buffalo, N. Y., has just returned from a trip through New England in company with Daniel L. Hanson, of Boston, New England representative for the Excelso Specialty Works.

L. F. Hamilton, of Walworth Mfg. Co., Boston, Mass., and **H. L. Delander,** of Crane Co., Chicago, have been elected as members of the Board of Directors of the newly organized Industrial Advertising Association, which was formed as a part of the Associated Advertising Clubs of the World.

R. T. Lawrence, whose likeness is shown herewith, has just been appointed sales manager of the plumbing goods department of the Bridgeport Brass Co., of Bridgeport, Conn. Mr. Lawrence has had a wide experience as salesman and sales manager in the plumbing supply field, and was at one time sales manager for the Monarch Engineering Co. in Dayton, O. His many friends in the trade will wish him success in his new position.

R. T. Lawrence.

J. R. Dulany, manager of the Chamberlain Company, of Pittsburgh, Pa., was in Chicago this week, and made arrangements with Oscar C. Andersen to represent his company in Chicago and adjacent territory.

C. H. French, formerly branch manager of the Southwest Plumbing Supply Co., of Kansas City, Mo., has been appointed sales representative for the Casey-Hedges Co., of Chattanooga, Tenn., and the National Sanitary Co., of Salem, Ohio. His territory will include Iowa, Nebraska, Kansas, and parts of Missouri and Arkansas.

Karl Zoller, formerly advertising manager of the Kenney-Cutting Products Corporation, of New York City, has been appointed director of sales, and manager of stock promotion for the Commander Motors Corporation, with offices at 49 Wall Street, New York City. Mr. Zoller has gained much popularity in the plumbing and heating field through his book entitled, "Merchandising the Plumbing Business."

Twenty Years Ago in "Domestic Engineering"

Saturday, August 9, 1902.

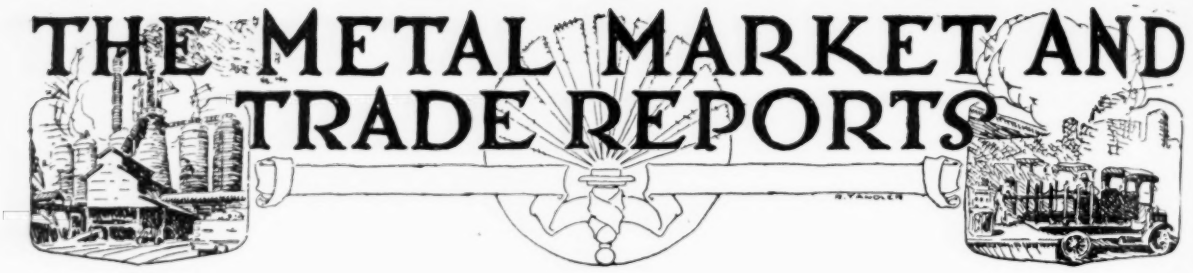
Death.—Joseph Bond, president of the American Radiator Co., died at his home in Chicago August 8. Mr. Bond had been in executive control of this company for ten years.

Plumbing to Be Inspected.—The city council of Des Moines, Iowa, has passed an ordinance to regulate plumbing of private as well as public buildings. All plumbing work must be done under the supervision of the city plumbing inspector. The inspection fee is fixed at one dollar per house.

Will Enlarge Plant.—The Waterbury Brass Company is building a new addition to its plant at Waterbury, Conn. The addition will be 150 by 200 ft. It is needed to take care of increased business.

Licensed Plumbers.—Before a plumber can work in Richmond, Virginia, he must pass an examination and secure a license. The examining board consists of the president of the board of health, the inspector of plumbing, one master plumber and one journeyman plumber.

THE METAL MARKET AND TRADE REPORTS



Steel and Iron.

The week has been one of great anxiety to the steel manufacturers in the Pittsburgh, Youngstown and Wheeling districts. The fuel situation has not improved and the necessity for curtailing steel production has greatly increased, resulting in the taking off of productive units by practically every steel company in the three districts. Blast furnaces have been banked or blown out, open hearths taken off and coke producing units shut down or reduced in operation. Rolling schedules are now beginning to be affected and the prospects ahead of the industry are discouraging in the extreme.

Leading steel manufacturers feel that even though the rail and mine strikes should come to an end soon, the chances for a quick return of steel making to normalcy are quite slim, inasmuch as the coal produced and the cars restored to service would be required for supplying public utilities, public works and domestic requirements ahead of the steel industry and that no surplus would be left for the mills for several months to come.

A most serious aspect in the coal strike developed last week when it was ascertained that coal in transit for the mills was being confiscated. With rapidly depleting stocks and no additional cargoes coming in preparations were being made for suspension of operation. It is expected that the Farrell Works of the Carnegie Steel Company will go down, depriving 1,800 men of employment. The American Sheet and Tinplate Company at Farrell is having difficulty obtaining sheet and tin bar and several mills have been forced to close for a few days at a time. It is predicted that unless the coal strike is settled there will be few plants operating in the Shenango Valley within the next few weeks.

Leading figures in the industry say that the situation is getting more serious every day. Failure of the national Administration to secure better results in endeavoring to settle the labor disputes has produced considerable disappointment.

Intermittent employment is, therefore, increasing, while the number of steel workers wholly thrown out of employment is gaining. An outcome of the situation is that buyers in some lines are pressing for deliveries, particularly the lighter products required by the motor industry, such as sheets, strips and light plates. Warehouses and jobbing interests were among the first to advance prices. For instance, warehouse prices on black sheets have advanced to $4 a 100 pounds, which compares with a quotation of $3.15, at which independents were booking tonnages before the shopmen's strike. Galvanized sheets have likewise been marked up by warehouses to $5 a 100 pounds, while blue annealed grades are quoted from $3.50 to $3.60.

Mills are endeavoring to hold prices in check, and point out there is little advantage in negotiating sales during periods such as the present, when deliveries are uncertain, and largely out of the question. Little new business is being considered in any lines.

Steel manufacturers, however, look for a great boom in the iron and steel industry just as soon as the coal and railroad strikes are settled. They state that while few orders are being booked now there is a great volume of business in sight.

Prices for pig iron are quoted as follows:

No. 2 Foundry, Pittsburgh	$29.76@$30.76
No. 2X Eastern Penn., Philadelphia	28.76@ 29.76
No. 2 Southern, Birmingham	19.00@ 20.00
No. 2 Foundry, Chicago, furnace	28.00@ 29.00
Basic Valley, furnace	25.00@ 26.00
Bessemer, Pittsburgh	26.77

Copper.

The copper market was strong all of last week at 14 cents for electrolytic delivered through August, September and October, with the tendency toward higher levels. The Copper Export Association quoted 14¼ cents c. i. f., European ports. A shortage of copper is developing as consumption is still in excess of production and stocks of refined are down to 140,000,000 pounds held by producers and 180,000,000 pounds by the Copper Export Association. The latest estimates put June shipments into foreign and domestic consumption at 180,000,000 pounds and those of July at about 160,000,000 pounds, of which 60,000,000 pounds went abroad. Refined copper output in July amounted to about 130,000,000 pounds, smelter production to 95,000,000 pounds and imports to 34,000,000 pounds. This discloses a reduction in refined stocks in July amounting to 30,000,000 pounds, about half the decrease recorded in June. Blister stocks have about been exhausted and scrap copper held by consumers will be absorbed by October. From now on consumers will have to depend on current production for their needs, and it is doubtful if labor conditions will permit of expansion in output sufficient to meet the requirements. Lake copper is now held at from 14⅛ cents to 14¼ cents.

Tin.

A technical reaction in the upward bull movement in London on realization followed by a rally featured the tin markets last week. The net change for the week in London was one pound and twelve shillings for the list. Prompt deliveries of Straits closed at 32½ cents a pound and a premium of ⅛ cent appeared on the later months, the first in weeks. There was considerable increase in activity in the domestic market on the recent reaction, mostly on the part of jobbers as the consumers are taking little or nothing at the present time. The world's visible supply figures were made public last week and showed a drop of 2,064 tons during the month, a most bullish argument.

Lead.

Lead advanced fully 10 points last week, closing at 5½ cents East St. Louis, although there were rumors of a little still available at 5 points less. The New York market ranges from 5¾ cents to 5.80 cents, the reason for the premium sales being due to stringency of supplies at that point. Demand is increasing and prices tending higher.

Zinc.

Another advance in zinc prices last week, amounting to from 5 to 10 points, firmed the St. Louis market up to 6.30 cents to 6.35 cents a pound. This is for August and September delivery, as deliveries beyond that are available at a discount of 10 points. Futures are therefore at a premium of $2 a ton. Within a year zinc has advanced 50 per cent in price. The freight and handling differential of 35 points between St. Louis and New York still holds. A shortage of zinc is imminent.

Other Metals.

Quotations on other metals in New York are as follows:

Aluminum in 15-ton lots, 99 and purer....20.10 cents per lb.
Antimony, Chinese brands ..... 5.25 cents per lb.

New York Old Metal Market.

The following prices are current for old metals:

	Buying	Selling
Copper, heavy	11½ to 11¾ cents	12¼ cents
Copper, light	9¾ to 10¼ cents	10¾ cents
Brass, heavy	6¼ to 6¾ cents	7¼ cents
Lead, heavy	4¾ to 4⅞ cents	5⅛ cents
Tea lead	3 to 3¼ cents	4 cents
Crucible copper	11⅞ to 12⅛ cents	12½ cents
Zinc, new scrap	4½ to 4¾ cents	5¼ cents

Chicago Old Metal Market.

The following are the current prices for old metals:

	Buying	Selling
Crucible copper	11¼ to 11½ cents	12 cents
Heavy copper and wire	11 to 11¼ cents	11½ cents
Light copper	8½ to 9 cents	9½ cents
Red brass	8¼ to 8½ cents	8¾ cents
New brass clippings	8 to 8¼ cents	8¾ cents
Heavy yellow brass	6½ to 7 cents	7½ cents
Light brass	5 to 5½ cents	6 cents
Heavy lead	4¼ to 4¾ cents	5 cents
Tea lead	3½ to 3¾ cents	4 cents
Zinc	3½ to 4 cents	4½ cents
Block tin pipe	26 to 28 cents	29 cents

IN THE CHICAGO SUPPLY MARKET.

Chicago, August 8.—This week sees the Chicago supply market being gradually strangled by the two strikes that have held the country for the past several months. Manufacturers all report that the situation is becoming more serious every day, and this fact combined with the excessive amount of building has led to a situation in the market that augurs ill for the construction industry unless a remedy is soon found.

"Even if the coal strike would be settled today," says a manufacturer's representative who is well informed on steel pipe, "it would take us until the first of the year to get caught up, as in many of the districts blast furnaces are standing idle, which means a shortage of pig iron, and practically all of the reserve stock has been used up. At present we are able to operate only at about 60 per cent, still there has been little or no let up in the demand. Consequently we are not catching up with our orders. The jobbers are all calling for big shipments and getting small ones." This sums up the situation fairly well for the whole field as far as makers of steel pipe are concerned, and jobbers are quick to corroborate the statement that steel pipe is almost unobtainable.

Soil pipe is in a similar plight, due to the shortage of freight cars. The railroads from the South have put a partial embargo on everything except coal, which is very much in demand from the Southern non-union fields, and as a result foundries are confronted with the problem of moving their finished product as well as getting in the raw material.

"The situation is critical," says Wm. B. Neal of the Somerville Iron Works, "and unless something is done pretty soon there will be absolutely no soil pipe on the market at all. While the market prices remain the same, I believe that anyone who had some 4-inch soil pipe in Chicago right now could get almost any price for it. At our foundry, for instance, we should have had ten cars in the last few days and we were able to get only two."

The same elements are making a bad situation worse in the sanitary enameled ware field. There is a growing shortage in all lines of enameled goods, but bathtubs are the most difficult to obtain at the present time.

The demand for pottery is good but not as heavy as that for enameled ware. This is explained by one manufacturer as the fact that in the apartment class of building there is more call for enameled ware than for porcelain or vitreous china.

Brass is firm, and while enjoying a good market, the manufacturers of brass goods are having no trouble in keeping up with their orders. There have been no price changes of importance in brass on the Chicago market for a number of months.

The heating season is starting, and among boiler and radiator manufacturers we hear optimistic reports of the amount of business on hand and the larger amount anticipated in the near future.

But between all manufacturers and the good market that awaits them, there is the spectre of a coal famine and a complete railroad tie-up, and until these are disposed of, there is no one who can look into the future without grave misgivings.

IN THE NEW YORK SUPPLY MARKET.

New York, N. Y., August 7th.—As might be expected the New York plumbing and heating supply market is experiencing a certain amount of difficulty in keeping supply up to demand owing to the transportation tie-up. The situation is not yet really serious but it may very easily become so, if the strike continues. It is possibly being aggravated by a tendency on the part of jobbers to buy ahead rather more than they usually do. Apart from this factor the market continues satisfactory with prices firm all along the line. In the case of certain lines of brass goods the preferentials have been cut out, and rumors of an upward move in steel pipe are becoming more definite.

The efforts on the part of soil pipe manufacturers to clear up arrears of orders on their books is being hampered by delays in shipment, owing to the railroad strike, but jobbers are certainly in a better position as regards this commodity than they were. The demand continues active but prices are possibly not so firm as a few weeks ago. Local jobbers express the opinion that the next move in price schedule will be down rather than up, but no early change either way is anticipated. It is conceded that so long as demand stays at its present level prices also will stay "put."

The rumors about an advance in steel pipe, so frequently noted in these reports, are now crystallizing into more definite shape. According to one leading jobber, a well-known mill man said this week that there would be an upward move within the next month or so. The only factor that is holding back this move is the transportation strike, the mill men fearing to be accused of profiteering if they advance prices at the present stage.

Iron pipe is in excellent demand, following the building program in Greater New York, and it is noted that there are signs of greater activity in better-class home construction and also in office buildings, which is reflected in a slightly greater activity in the call for wrought iron pipe.

Brass goods are doing rather better, a favorable development in demand being reflected this week in the cutting out of the preferentials in certain lines of valves and fittings. This is not general yet, but straws show which way the wind is blowing, and it is considered probable that most of the jobbers will line up presently.

Enameled goods are steady as to demand, with possibly a slight falling off. Even after allowing for that, however, it is stated that there is more business than in a normal year at this period of the season, the extensive building program, still under way, reacting very favorably on the general situation. There is no change in prices reported nor is any move in this direction considered likely.

Heating equipment is still in the doldrums, though moving

(Continued on Page 307.)

Exchanging Ideas is the Foundation of Progress

What Associations Are Doing

Through United Effort the Individual Succeeds

PRESIDENT JOHN S. IRVINE ANNOUNCES HIS CABINET.

John S. Irvine, of Detroit, Michigan, president of the National Association of Master Plumbers, has just announced his selection of members of the Board of Directors for this organization for the year 1922-1923. In announcing his selection he states that he has endeavored to secure the services of the best men that the association has to offer, with due regard for geographical distribution. The new directors are:

Jos. W. Cannon, 11323 Michigan Avenue, Chicago, Ill.
A. V. Eidman, 206 South Eutaw Avenue, Baltimore, Md.
J. A. Gallivan, Muncie, Ind.
Wm. Griggs, 936 Commerce Street, Tacoma, Wash.
J. Hokom, 4312 Moneta Avenue, Los Angeles, Calif.
C. L. Kennedy, 714 Francis Street, St. Joseph, Mo.
J. O. Montrief 307 West Thirteenth Street, Fort Worth, Tex.
Thos. F. Nolan, 72 Madison Avenue, Albany, N. Y.
Geo. F. Reeke, 219 Pine Street, Green Bay, Wis.
S. A. Tompkins, 11 West Fifth Street, Charlotte, N. C.
J. F. Wallace, 1509 Tremont Street, Denver, Colo.

By virtue of their offices the following will also serve on the board:

President John S. Irvine, 1259 Book Building, Detroit, Mich.
Vice-President Samuel F. Wilson, Newark, N. J.
Treasurer Richard J. Welch, 71 Middle Street, Lowell, Mass.
Secretary William Hughes, 945 Merrick Avenue, Detroit, Mich.

Mr. Irvine is to be congratulated on the choice, because the gentlemen selected are all of such sterling character that an efficient administration may confidently be expected at their hands.

APPRENTICESHIP COMMITTEE TO MEET IN EVANSVILLE.

President John S. Irvine, of Detroit, Mich., has called a meeting of the Apprenticeship Committee of the National Association of Master Plumbers to meet on August 14 at Evansville, Ind. The meeting was originally slated for Chicago, but recent information advises that the place of meeting has been changed as above noted.

DULUTH MASTER PLUMBERS' SMOKER.

The Master Plumbers of Duluth, Minn., and vicinity, held a very enjoyable and well-attended smoker at the Duluth Gun Club on Thursday night, August 3d. Local jobbers of plumbing and heating supplies, as well as traveling salesmen who happened to be in town at the time, all joined in the festivities.

The success of the affair reflects great credit on the committee, which consisted of Ed Krause, Rupe Mierhoff and Fred DeBoer. Archie McDougal assisted materially by delivering an interesting address. F. Sterns presided.

CLEVELAND HEATING AND PIPING CONTRACTORS AND HEATING AND VENTILATING ENGINEERS IN JOINT OUTING.

Following a custom started some years ago, the Heating and Piping Contractors of Cleveland and the Ohio Chapter of the American Society of Heating and Ventilating Engineers, held their summer outing at Willough Beach, about twelve miles east of Cleveland on Lake Erie, on Wednesday, August 2.

The program started at 2.30 p. m. with races and contests for the kiddies, then the ladies came in for their chances to

The Annual Outing of the Master Plumbers' Association of Dayton, O., Held at W

Photographs Taken at the Annual Outing of Cleveland Heating & Piping Contractors and the Ohio Chapter of A. S. H. & V. E. Upper Row, Left to Right: E. F. Rather, Johnson Service Co.; F. D. Rollins, United States Radiator Corporation; Wm. M. Kingsbury; Frank G. Phegley; Mr. Gallagher, Harry Cohen, H. M. Harris, Samuel Smith, Wm. Bohnart, all of the Bishop & Babcock Co.; Heating Contractors' Team in the Tug-of-War. Center: The Ladies' Shoe Race. Lower Row: T. A. Wenger, Buffalo Forge Co.; F. H. Valentine, of Mayer, Valentine & Cameron; Wm. Clarke, Becker-Seidel Co.; James Mason, Utica Heater Co.; Heating and Ventilating Engineers' Team; Heating Contractors' Baseball Team.

win prizes. Then the men entered in a 100-yard dash, a pipe and tobacco race and a tug-of-war, and to top off the sports a ball game was held between the contractors and engineers. The ball game was one of the best amateur games we have ever watched. Every inning was a fight for a score as the teams held about even right up to the end of the ninth inning, when the score stood seven to seven. Eleven innings were played. In the eleventh the Engineers bunched two hits, stole a couple of bases and squeezed in two runs defeating their opponents nine to seven.

After the ball game, basket lunches were spread, and when the last chicken bone had been picked the party retired to the pavilion for an evening of dancing.

About one hundred and fifty attended the outing.

Great credit must be given to those who made the arrangements for this enjoyable affair.

DANVILLE MASTER PLUMBERS AND JOURNEYMEN HOLD PICNIC.

The first joint picnic of the Danville, Illinois, Master Plumbers and their employes was held at Rodgers Park, Covington, Ind., on Thursday afternoon, August 3rd. The affair, with about a hundred in attendance, was such a delightful affair that it was unanimously voted on the spot to make the picnic an annual event.

In the baseball game, which was the feature of the day, the masters proved that they weren't so slow by winning a hard fought contest from their employes to the tune of 14 to 11. The victory was due in a large part to the masterly hurling of Walt Hannum, although Mr. Carson, who pitched for the journeymen, had several of the contractors' best batsmen striking at the ozone. After the ball game swimming

ly 20th, as Reported in the July 29th Issue of "Domestic Engineering."

was the order of the day, followed by a real dinner that will linger long in the minds of the party. The special guest at the picnic was Alan T. Gordon, secretary of the Danville Chamber of Commerce, and in a brief address he complimented the members of both organizations for the plan of holding a picnic as a means of getting better acquainted.

KANSAS CITY, MO., MASTER PLUMBERS HOLD ANNUAL OUTING.

Full of the holiday spirit and as full of play as a bunch of kids on circus day, the members of the Master Plumbers' Association, of Kansas City, Mo., and their families held their annual picnic on Saturday, August 5th, at Fairmont Park, a beautiful spot on the outskirts of the city.

Having as their guests representatives of the local supply houses and members of the Kansas City, Kansas, and St. Joseph, Mo., associations, the local men and members of the Ladies' Auxiliary made everybody feel welcome and furnished food, refreshments and amusements that will long be remembered by all.

President E. D. Hornbrook and his good wife were early on the job and saw to the setting up of the culinary department. Mr. Hornbrook took personal charge of the brewing of the coffee for the picnickers who numbered close to a thousand, while Mrs. Hornbrook unloaded basket after basket filled with fried chicken, cookies and salads, which she had prepared for the guests. The members of the Woman's Auxiliary were on the job in full force and from the amount of food they had prepared it was very evident that they had worked overtime the day before. The entertainment committee, which consisted of E. A. Kubler, D. E. Justice, J. S. Levene, W. W. Preston, and Herman Hampel looked after the comfort and entertainment of the crowd.

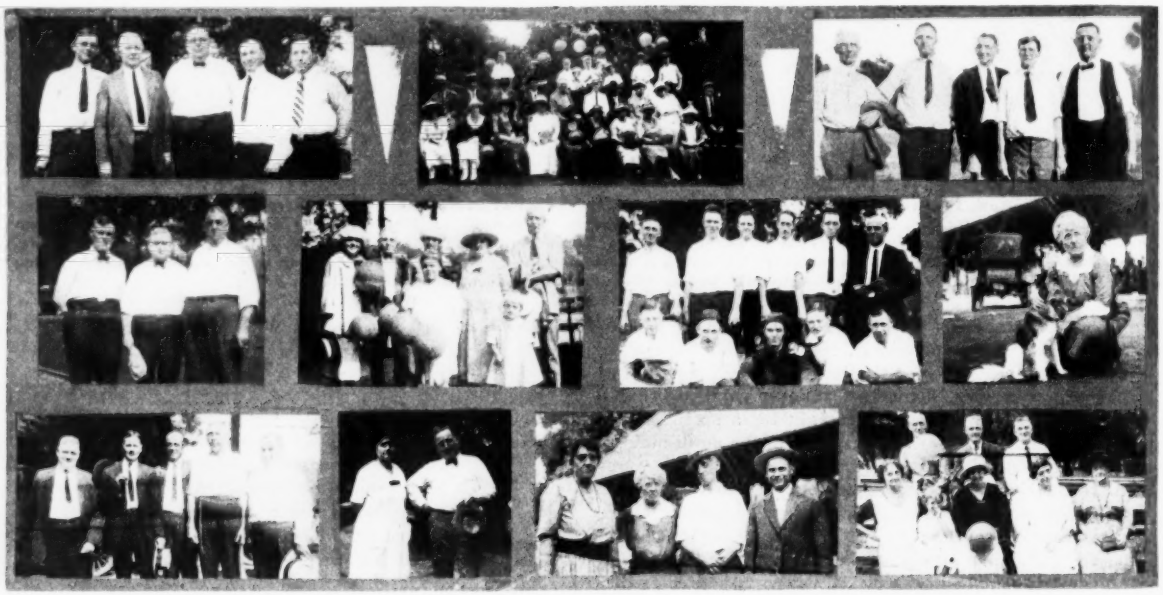
Foot racing, baseball, and other outdoor sports were well arranged for and carried out, and some very valuable and useful prizes were awarded.

The Master Plumbers' baseball team played two games with a team picked from representatives of the local supply houses. The Master Plumbers set the pace in both games, 3 to 1 being the score of the morning game while the final result of the afternoon event was about 14 to 8.

Following the contests and the evening meal the kiddies and younger people used the tickets which were plentifully supplied them for admittance to the various amusement concessions at the park, the men folks stood and sat around in groups and visited while the members of the auxiliary sorted out their belongings and prepared for the trip home. Everybody voted it one "grand and glorious" outing.

MANHATTAN MASTER PLUMBERS' CLAMBAKE TO BE HELD SEPTEMBER 14TH.

The Manhattan members of the Master Plumbers' Association of New York will hold their annual outing and clambake on Thursday, September 14th, at J. P. Viemeister's Port-au-Peck Inn, Pleasure Bay, N. J. Friends and families of the members are invited to attend. Tickets include a steamer sail from the Battery, with entertainment and refreshments on board, breakfast at the arrival in the grove, athletic events and, last but not least, the clambake. The day will consist of five hours of sailing and six and a half hours of entertainment and festivities at the grove.



At Kansas City Master Plumbers' Outing.—Upper Row, Left to Right: T. H. Lansdale, American Heater Corporation; G. H. Gorton, W. B. Young Supply Co.; F. F. Dodds, American Radiator Co.; W. F. White, Ruud Mfg. Co.; R. E. Bidwell, Kellogg-Mackay Co.—St. Joseph Master Plumbers and Their Families.—W. W. Long, Baker Mfg. Co.; W. Wiedeman, of United States Water & Steam Supply Co.; W. H. Saxton, Kansas City Pump Co.; Geo. J. Redmond, Wolff Mfg. Co.; and J. Oscar Smith, Baker Mfg. Co.—Center Row: G. E. Foley, E. D. Hornbrook, President of Kansas City Association; C. E. Jones.—John Collopy and William Ball and Their Families.—The Supply House Baseball Team.—Mrs. E. D. Hornbrook.—Lower Row: Another Group of Picnickers at the Outing.—Secretary W. C. Green and Mrs. Green.—Mrs. C. E. Jones; Mrs. E. D. Hornbrook; Isadore Holberg, a Blind Kansas City Master Plumber, and Mr. Hearst, his assistant.—H. E. Dixon, W. B. Young Supply Co.; J. H. Ross, Ross Mfg. Co.; J. J. Sherin, and a Group of Ladies.

NEW JERSEY EXECUTIVE BOARD TO HOLD AN OUTING.

The Executive Board of the New Jersey State Association of Master Plumbers will hold an outing on Tuesday, August 15th, at "By-a-Dam-Site," the summer home of Frank Fell, Scudder Falls, N. J.

Webb Plumbing Co. has started in business at 956 North Central Avenue, Knoxville, Tenn.

ST. LOUIS MASTER PLUMBERS HEAR T. E. B. LECTURE.

One hundred and fifty members of the Master Plumbers' Association, of St. Louis, Mo., turned out Monday evening, July 31st, for a dinner given by the association at the American Hotel Annex, at which W. G. Archer, of the National Trade Extension Bureau, Evansville, Ind., was the principal speaker.

Among those at the speakers' table, at which Jere Sheehan, president of the association, presided, was J. S. Haney, secretary of the Master Pumbers' Association of Memphis, Tenn., who was passing through the city and remained for the dinner.

Mr. Archer in his address urged the plumbers to use newspaper advertising to place the work of their craft properly before the public.

Edward Gengenbach, of the St. Louis Chamber of Commerce, and W. E. Rolf, of the Board of Public Service, urged the support of the Master Plumbers' Association for the $75,000,000 municipal bond issue for public improvements, which is to be submitted to the voters of the municipality next February. Both stressed the need of improved sewer and water facilities for the city.

The two speakers were greeted with applause but the association took no definite action looking towards the indorsement of the proposed bond issue.

Warren C. Flynn, mayor of University City, one of the suburbs of St. Louis, also made a short talk.

There also was a musical program furnished by a male quartet which was well received by the assembly.

NEW BEDFORD OUTING HELD AT BAY SIDE PINES, MARION, MASS.

The tenth annual outing of the Master Plumbers' Association of New Bedford and Vicinity, Inc., was held on Wednesday, August 2nd, at Bay Side Pines, Marion, Massachusetts, the beautiful summer home of Charles A. Maxfield, one of the members of the association. Everything about it was ideal for a wonderful outing, but for the occasional showers of rain. In spite of this, however, there were nearly two hundred and fifty people present. This included members of the association, their wives and children, and representatives of the jobbing and manufacturing side of the trade.

After running the gauntlet of greetings from old friends and the members of the committee in charge, the first thing that welcomed the crowd was the temporary lunch room in the garage. Here tables were laid out covered with all the makings of the old-fashioned free lunch, pickles, crackers, cheese and ginger ale. This was the starting point for all parties. From here they wandered out through the pine grove, beside the house, to the open fields where a snappy ball game was in full swing. There was no way of following the game to a finish, for the rain broke it up and drove the players to the shelter of the trees.

After the ball game some of the boys climbed into bathing suits. The water of Buzzard's Bay was warm and attractive, and Mr. Maxfield's pier, reaching out into the water, offered a good opportunity for all kinds of diving.

Back in the grove the fire for the clambake was being lighted. A big pile of wood covered with stones, was soaked in kerosene. A touch of the match and the most important part of the whole outing was off on the home stretch. Around the fire were barrels of clams waiting the propitious moment, and just a short distance away, where a stove had been set up, a real New England clam chowder was in the making.

About two thirty, the committeemen, disguised as French chefs in white coats and hats, set up the tables under the trees; six long wooden tables, each one seating about forty

Double Your Sales
OF
Automatic Gas Water Heaters

THE advent of the TOOMBS AUTOMATIC Gas Water Heater is making possible the sale of this much-needed device for every home having gas. The prices range from $35.00 to $110.00 for the large 3 to 4-gal.-capacity-per-minute size, which prices are well within the reach of every home owner.

Not only is there a decided saving when you buy it, but there is even a greater proportionate saving when you use it, for the monthly gas bills are kept ridiculously low.

THE TOOMBS is an instantaneous automatic coil heater. It has no tank. It operates on any water pressure from 6 pounds to 100. Its construction principle is altogether different. Thousands have been in constant use for a period of six years with not a single case of burner clogging reported. Coils do not lime up as in most heaters. It is thoroughly reliable and efficient.

Plumbers who are interested in increasing their heater sales should by all means learn about our exceptional merchandising and advertising plan for doing a bigger heater business. Write us on your business letterhead and get the facts about the most unusual heater value on the market today.

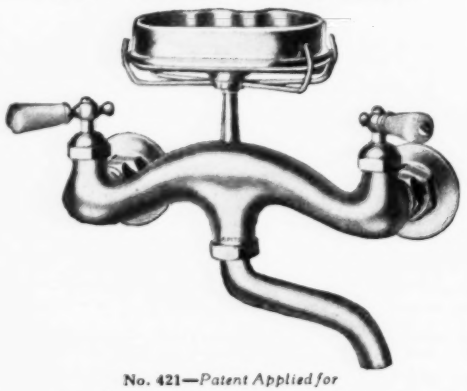
Geneva Heater Company
DEPT. G
Geneva, Illinois

Capitol Products

Always Satisfy

Attractive Design—High Grade Metal—Superior Workmanship Carefully Inspected and Tested

Combination Sink Bibb



No. 421—*Patent Applied for*

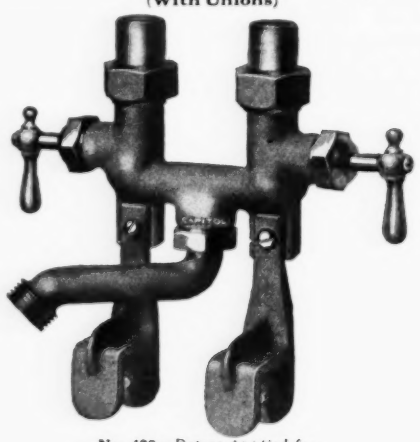
Our plumbing fixtures are made of a high grade steam metal composition, consisting of only the highest grade virgin metals, thereby giving long wear to seats and threads, and a finish that is lasting

The Capitol Line Includes:

Radiator Valves	Boiler Trimmings
Packless Radiator Valves	Fusible Plugs
Gate Valves	Basin Cocks
Globe Valves	Sink Bibbs
Check Valves	Air Cocks
Pop Valves	Steam Gauges
Relief Valves	Vacuum Gauges
Lavatory Valves	Altitude Gauges
Mixo Bath Cocks	Drain Cocks

Combination Laundry Tray Bibb

(With Unions)



No 420—*Patent Applied for*

Also furnished without unions

Capitol Brass Works

DETROIT, MICHIGAN

people. Even then there was not room enough for all to sit at the first table and some of the boys, rather than wait, took their dinner standing. Down came the rain in real earnest just at the time everyone was being seated, but nobody seemed to mind. They all took seats quickly, to keep them dry, crouched under umbrellas or pulled themselves into the turned-up collars of rain coats. Those who were not fortunate enough to have these things, got seats as far into the grove as possible and proceeded to enjoy it all, including the rain.

The committee served the dinner. And such a dinner as it was! Nothing that was ever mentioned in connection with a clambake was left out, and there was more than enough. Second helpings were in order all around, and as fast as one thing was eaten a new surprise was brought out. Those who professed to know what the menu was to have been were astonished along with the rest.

Generous helpings of clam chowder started the ball rolling. Big dishes of oyster crackers, pickles, brown and white bread were within reach of everyone. No sooner had the clam chowder disappeared than little clams, baked swordfish, baked sweet potatoes on the side, tripe, sausage, fritters, dressing and sweet corn, were served.

Last, but not least, came the watermelons. Baskets of them! Ice cold! After such a meal it was most welcome, being in fact the only thing that could have been eaten.

After dinner the sports got under way, under the direction of Walter Bailey. Wet grounds were to a great extent a draw back, but after such a bang up dinner everyone felt just like pitching in and making the most of it. Not all of the stunts planned were run off, but there were enough to make this feature of the day interesting and enjoyable.

Among some of the well-known men outside of the New Bedford Association who were present were: G. Wilbur Thompson, of Newton Center, past President of the State Association; Edwin W. Cox, of the firm of Pierce and Cox of Boston, President of the State Association; Andrew McGlynn, of Taunton, Vice-President of the State Association; B. J. O'Donnell, of New York, representing the Trade Extension Bureau; George W. Best, special representative of the Sloan Valve Co., of Chicago; and Mr. Johnson, of the Johnson Washburn Co., of Boston.

The committee from the New Bedford Association that had the outing in charge was J. P. Reilly, president and chairman; Walter Bailey, in charge of sports; James Murphy, Harry Mulberry, Ernest Margeson, H. C. Reynolds, Linneus Morton, Charles A. Maxfield, Alvin Topham, Richard Thatcher, H. P. Delano and E. P. Hirst. On the job every minute was their motto, and all their work made a big success of the outing regardless of the weather.

It is unfortunate that such an affair could not have given us a number of interesting pictures. The weather was against us, however, and though shots were tried of the ball game, the diving, the dinner in the pine grove, the white coats and all the prominent guests, our efforts came out all blank. The weather spoiled nothing but the pictures. Apart from that, the tenth annual outing of the Master Plumbers' Association of New Bedford, was a grand success.

YORK, PA., CONTRACTORS REPORT ACTIVITY.

With a 70 per cent increase in the amount of plumbing work let during the past six months over that of the corresponding six months for 1921, York, Pa., is showing no signs of depression in the building trades. One hundred and thirty-eight sewer connections were made during the month of June.

Dealers in plumbing and heating supplies report, however, that the recent increases in several lines of plumbing and heating supplies have had a tendency to slow up the building boom that for a while looked so promising.

C. C. Kottcamp & Son, of York, have secured the plumbing

contract on the Mahlon N. Haines residence, the Haines store and apartment building, the Hershey apartment building, F. H. Welsh store and apartment building, and on the 16 houses for A. M. Hake & Co. in that city.

CHICAGO BUILDING PERMITS BREAK ALL RECORDS.

Permits for buildings to be erected in Chicago taken out during the first seven months of this year have exceeded in value the permits taken out in any whole year previous to this time. Nearly one hundred and twenty-eight millions of dollars are represented in these permits.

Last year was considered a high water mark, with $125,000,000 on the books. The total for 1920 was only $79,191,659.

In the first seven months of this year permits for 3,904 residences and 2,238 apartment buildings have been taken out. These permits mean approximately 13,500 new homes.

An interesting fact gleaned from the survey of the city's building history is that in 1892 the average cost per building was about $5,000, in 1919 it was approximately $17,000, in 1921 it established the present record of $18,670, and thus far this year it has eased off to $16,870 per structure.

COAST COUNTIES (CALIFORNIA) ASSOCIATION HOLDS MONTHLY MEET.

The plumbing trade of Central California is becoming unified and organized as never before. It's in the air. And one of the most important factors in this development is the activity of the district organization, bringing the members of craft together for better social relations, and for mutual counsel and exchange of experience. Perhaps there is no organization that, within its territory, better effects these purposes than the Coast Counties Master Plumbers' Association. Its members, more isolated and scattered than many others, profit greatly by the educational features and the get-together spirit of the organization. The last meeting on July 26th was called to order at Santa Cruz, with Ed. Simpson of Pacific Grove in the chair.

Quite a number of visitors from Oakland, Berkeley, and Alameda and San Francisco was in attendance. No set speaker was provided but talks from the floor, rich in experience and practical information, were enthusiastically received. Among the speakers were John L. E. Firmin, the state secretary; W. P. Goss, of San Francisco, and Harry Newman, of Oakland, members of the State Executive Board; George Stoddard, of Berkeley, and Mr. Brown, the gifted orator. The great mutual benefit of such organization and such meetings was stressed by the speakers. After the business meeting the visitors were treated to a barbecue in the nearby park, where delicious steaks melted in the mouth as

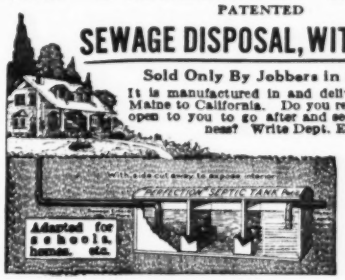
Mesdames H. Holland, J. H. Murphy, O. F. Mott, O. R. Earle, F. A. McIntyre, C. Hahn, D. H. McAlpine and A. W. Sweet, Part of the Ladies' Auxiliary Entertainment Committee, at Sacramento, Calif., at the Recent Convention of the California Master Plumbers' Association. From "Domestic Engineering" Photo.

MR. PLUMBER:

The "Perfection" Septic Tank

PATENTED

SEWAGE DISPOSAL, WITHOUT SEWERS



Sold Only By Jobbers in Plumbing Supplies

It is manufactured in and delivered from 27 cities, from Maine to California. Do you realize the big opportunity open to you to go after and secure good profitable business? Write Dept. E for detailed information.

It's Free

United Cement Products Co.

Sole Manufacturers

Executive Offices

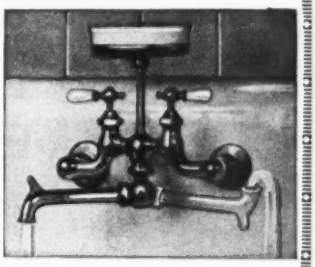
27 E. Vermont St.

Indianapolis Ind.

Everybody Likes It

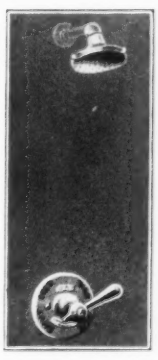
Wherever the Gopher Combination Sink Faucet and Drinking Fountain is used, it is highly approved.

The "three-in-one" feature and splendid appearance make an instant appeal to the housewife. If you have not seen this fixture, order one today—you'll want more.



All good jobbers carry the Gopher Line of Fuller, Compression, Quick-Opening and Ground Key Work, Ball Cocks, etc.

Union Brass & Metal Mfg. Co. (Established 1892) ST. PAUL MINNESOTA



THE INCOMPARABLE

NIEDECKEN SHOWERS

PATENTED

A SHOWER for industrial installation operated by concealed NIEDECKEN MIXER. Furnished either concealed or exposed. No piping.

Write for Bulletin D-10 X

HOFFMANN & BILLINGS MFG. CO.

MILWAUKEE, U. S. A.

SAACO

You have, no doubt, seen our advertisements in previous issues covering various specialties. We trust you will not overlook SAACO brand Soil Pipe and Fittings made at our Linfield plant.

Our goods are right. Service and prices must be right.

Sanitary Company of America

LINFIELD, PA.

For nearly fifty years we have manufactured the

BARRETT
Back Water, Sewer and Tide Trap

and it always has been and now is the best fixture for its purpose on the market.

James Barrett Mfg. Co. 115-121 Pearl St. Boston, Mass.

The extension table, made of sheet metal, shown in illustration can be detached and attached to any bench with two bolts.

More Profits

with less efforts are being obtained by using our Standard Portable vise bench and pipe bender. Set up in a minute. Nothing to take apart or put together. Several improvements. You will be well repaid if you will drop us a line for catalogue and list of hundreds of satisfied users.

Write now

Standard Iron Works Inc.
508-10 E. 74th St. New York City

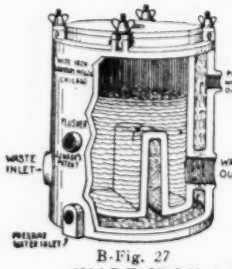
FELT GOODS

Washers and packings for all plumbing and heating purposes, cut to order in large or small quantities, any size and thickness.

Quick Delivery

THE BOOTH FELT CO., Inc.
740 Sherman Street CHICAGO, ILL.
474 19th Street BROOKLYN, N. Y.

WADE Water Jacket Grease Trap



B-Fig. 27

The unusual success of this trap is due to the special design and working principle. Entire body, walls and center partition surrounded by cold water. Grease congeals as soon as it enters trap and floats to top where cleanout cover permits easy removal.

Used largely under kitchen sinks in hotels, clubs, etc.

WRITE FOR CATALOG.

WADE IRON SANITARY MFG. CO.
551 W. Fulton Street, Chicago

naturally as ice-cream in a furnace, and Mr. Sturdevant seasoned the meal in the capacity of toastmaster. After having accumulated enormous stacks of bones and cobs, and cigar ashes, all beat an unwilling retreat before the approaching darkness.

COAST BAY ASSOCIATION MEETS.

A meeting of the California Coast Bay Association was scheduled for Monday, July 31st, and it brought a record attendance from San Francisco, Oakland, Alameda, Richmond, San Mateo and San Jose. William P. Goss was chairman, and George Rodman acted as secretary. There were a number of entertaining and enthusiastic addresses from the floor. From the auditorium to the banquet hall of the Master Plumbers' headquarters was a very natural transition, and here they were greeted by a fine repast prepared by San Francisco's master chef, A. N. Newmark, with the assistance of Mr. Silver and Mr. La Chapelle. Smoke followed on smoke, and the meeting finally adjourned to meet again at San Jose. Mr. Hahn, acting secretary of the association, is authority for the statement that now that the association stenographer has returned from her vacation at Caliente, the social gatherings of the clan will be resumed.

DATA ON SAN FRANCISCO "AMERICAN PLAN" CONTROVERSY SENT TO WASHINGTON.

The fight over the American plan took on a new phase last week when the United States District Attorney in San Francisco forwarded the result of his investigations to the department in Washington and asked that the department take the data under consideration in connection with the provisions of the Sherman Anti-trust law. This action has been sought by the Building Trades Council.

Sixty-five members of the Builder's Exchange asked that in view of the prosecutions that have been started, a meeting be called to discuss the continuance of the permit system. By this system, the members furnish supplies only to those bearing permits from the Builders' Exchange, and the Builders' Exchange grants permits only to those who carry out the provisions of the American Plan by hiring a non-union man for every union man employed. The call was sent out urging a full attendance for the purpose of vindicating the plan. Over 600 of the 1100 members attended the meeting. The only opposition during the debate of 45 minutes came from the master plasterers. The chairman then called for a vote by roll call. After 38 votes were thus taken with only one opposing vote, motion was made for an "aye" and "no" vote. This was taken, and the Exchange went on record unanimously for the continuance of the permits.

TAKES HOSPITAL CONTRACT.

The Paul E. Mueller Co., of Milwaukee, Wis., has been awarded the contract for the heating and ventilating in the New General Hospital at Madison, Wis., following the approval of the governor. The company's bid was $36,965. The Immel Construction Company, Fond du Lac, Wis., was the lowest bidder for the general contract. Its bid was $688,843. The heating and ventilating contract is one of the largest let in Wisconsin this year, it is said.

MILWAUKEE BUILDING CONTINUES ACTIVE.

Building in Milwaukee has continued its spectacular pace during the past month, 3,072 permits valued at $3,161,603 were issued. The total since January 1st is 19,804 permits with a value of $19,333,429, the greatest in the history of the city. By a comparison of building records, it is shown that Milwaukee is $5,000,000 ahead of last year's building program, the total for the same period last year registering

17,726 permits valued at $13,692,764. This year building permits valued at approximately $30,000,000 will be issued if the present ratio continues, W. D. Harper, city building inspector, declared.

MASTER PLUMBERS, ELECTRICAL CONTRACTORS, AND BUILDING EXCHANGE, HAVE JOINT SECRETARY.

E. H. Brown, secretary of the Omaha Builders' Exchange, has just been appointed to serve as secretary of the Master Plumbers' Association, and the Electrical Contractors' Association, both of Omaha. Mr. Brown's work at the Builders' Exchange will enable him to co-ordinate these various secretaryships. He is also identified with the State Builders' organization.

DETROIT'S BIGGEST REAL ESTATE DEAL PRECEDES ERECTION OF TWO LARGE BUILDINGS.

Plans for a 20-story store and office building on Griswold Street, and a 10-story store on State Street, in Detroit, Mich., are being prepared by Murgatroyd & Ogden, architects of New York City, for Robt. and Mark W. Taylor, who in 1923 will erect the two buildings on the sites of the old Whitney Building and the building formerly known as the Richter's Hotel. The store will be occupied by the owners as a clothing store. The property is said to have been purchased for $18,000,000,—the largest real estate deal ever consummated in Detroit.

FORT MEYERS MASTER PLUMBERS FORM ASSOCIATION.

With a 100 per cent attendance of the master plumbers of the city, and with the assistance of J. C. Greenberg, representative of the National Trade Extension Bureau, the members of the plumbing and heating trades at Fort Meyers, Florida, formed the Fort Meyers Association of Plumbing Dealers and Heating Contractors.

Mr. Greenberg in addressing the assemblage hit straight from the shoulder in his characteristic manner that has become so well known to the plumbing and heating men throughout the country.

J. D. Ahren, of Art Brass Co., New York City, and J. C. Greenberg, of the National Trade Extension Bureau, on a Fishing Expedition in Florida.

Wolverine

PLUMBERS BRASS AND SPECIALTIES

Pipe Joint Cement

Does Not Bind Threads

Makes a Perfectly Tight Joint

Economical to Use!

Light in Weight

"A Little Goes a Long Ways"

Packed in 5 lb. to 50 lb. pails

We Sell the Retail Plumbing Trade Exclusively

WOLVERINE BRASS WORKS

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WOLVERINE CO., Inc.
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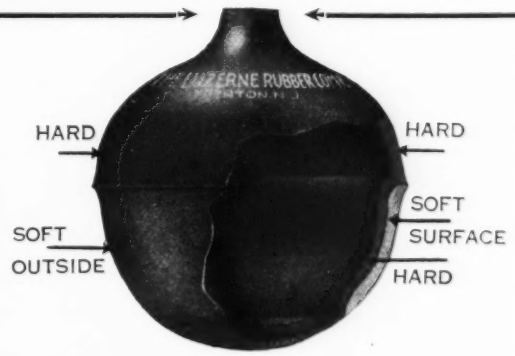
San Francisco, Cal.



Small—but Mighty Important

A tank valve ball may seem like a very small item, but unless it works right, the operation of the tank will not be satisfactory.

EBONITE TANK BALL

will give a lifetime of service. Made of pure hard rubber, cured hard on inside and soft on outside where float comes in contact with valve. Cannot collapse or swell.

Sizes 2⅜, 2½, 2¾ and 3 in.

Write us on your letterhead for free sample ball and try it out

The Luzerne Rubber Co.

Trenton, New Jersey

Chicago Office: 564 West Monroe Street

A Truly Universal Flush Valve—

The Haas Universal Flush Valve

—operates with any standard size and type of bowl
—has right or left hand, top or bottom connection
—successful with water of any analysis
—no metal to metal parts to stick
—no small parts to clog
—closes positively—free from leakage or seepage
—self-cleaned—fool-proof
—guaranteed for five years

Write for additional information, catalogue and prices

Philip Haas Co., Dayton, Ohio

HAAS FLUSH VALVES

Insurance

Against Flooded Basements

Where the Signet Drain is installed there can be no back water.
A perfectly reliable trap that automatically keeps out sewage, gas and germs.

TRADE MARK SIGNET REG. U.S. PAT. OFF.

Pat. Dec. 8, 1914

Write for details

Always works. Nothing to get out of order. Brass working parts submerged.
The Signet is clean, sanitary, simple, durable and efficient.

CRAMPTON-FARLEY BRASS CO.
KANSAS CITY, MO.

Simplify Your Heating Jobs

Whenever you install the "O-E" Perfect Heating System (Three in One) your customer not only gets more for his money, but the simplest, most flexible system made.

TRADE O-E MARK

Let us tell you how to convert unsatisfactory steam and hot water jobs into "O-E" "3-in-1" systems. The expense is nominal as compared with results.

Write for Booklet "A."

O-E Specialty Manufacturing Co.
884 Third St. Milwaukee, Wis., U. S. A.

TABASCO

A water heater *built of steel* that stays on the job for keeps. There is profit in them for you.

KEWANEE BOILER COMPANY
Kewanee, Ill.

"I am addressing the men who want to make good, and not those who don't care whether they amount to anything or not," was one of the pithy sentences, typical of his entire speech.

The following officers were elected to guide the new association over the first year of its existence: President, James Lawrence; vice-president, Van Andrews; and secretary-treasurer, Frank Des Roches.

GRAND RAPIDS BUILDING CODE DECLARED OBSOLETE.

Commenting on the need for an immediate revision of the building code of the city of Grand Rapids, Michigan, James Linke, city commissioner, says: "The present building code is obsolete. For months and even years the building inspector has been obliged to proceed on his own responsibility so far as matters in the ordinance are concerned. I have tried to interest other commissioners in revamping the code but can get no response. Their only suggestion has been that we hire an outside expert to draw up a new code which will conform with conditions as they now exist. In my opinion local talent could be used largely in remodeling the code. Inspector George I. Davidson and his assistants with the aid of the ordinance committee and the city attorney should be able to draft a code suitable for this city."

DETROIT WATER WORKS NEARING COMPLETION.

Detroit's new $5,000,000 filtration plant, which is now in the final stages of construction, is expected to be completed in April, 1923. According to Theodore A. Leisen, civil engineer in charge of construction, this plant, which will have a maximum pumping capacity of 400,000,000 gallons per day, will be the largest in the world.

Work on the new plant was started in the spring of 1921 and is now 95 per cent complete as far as construction is concerned. The new plant covers sixteen acres in Water Works Park, not far from the site of the present plant and is divided into three structures: the low lift pumping station; the coagulation basin, filter beds and wash tanks and the filtered water reservoir.

The pumping station which has already been constructed lacks only the addition of three 100,000,000 gallon centrifugal pumps. The two coagulation basins, measuring 480 feet by 270 feet are complete. The capacity of these reservoirs is 300,000,000 gallons. The filtered water reservoir, a basin 480 feet by 810 feet will be completed by December. When completed, the reservoir will be an all concrete structure 360 feet wide by 810 feet long. The roof of the reservoir will be covered with earth and utilized for tennis courts, according to present plans. The reservoir has a capacity of 40,000,000 gallons of water.

TO BUILD $1,000,000 HIGH SCHOOL IN WORCESTER, MASS.

The Board of Education of the city of Worcester, Mass., will take bids until Wednesday, August 23rd, on the plumbing, heating and ventilating work in connection with the erection of the new $1,000,000 junior high school on Arthur, Grafton and Dorchester Streets in that city. The building is designed by the J. D. Leland Co., architects and engineers, 41 Mount Vernon Street, Boston, and plans call for a most modern school structure. The heating will be by steam, and the plumbing fixtures will all be of the latest design. During the past week the Board of Education awarded the contracts for the plumbing and heating in the two new grammar schools, one in the Lake View section and one in the Greendale section. The heating in the Greendale school was awarded to the Ashe Engineering Co., 146 Central Street,

Worcester, on its bid of $14,549; and the plumbing to John Gustafson Sons & Co., 22 Lincoln Street, same city, at their bid of $2,235. The heating in the Lake View school went to the Brosnan Heating Co., 93 Green Street, Worcester, at its bid of $14,364; and the plumbing to the Field & Fielder Co., 39 Pearl Street, same city, at $5,114. Both schools are to be heated by steam, and modern plumbing is specified.

WATERBURY, CONNECTICUT, CONTRACTOR REPORTS NEW CONTRACTS.

M. J. Daly & Sons, Inc., 555 Bank Street, Waterbury, Conn., has been awarded the contract for the heating and ventilating systems in the new State Normal School building to be constructed in New Britain, by the Connecticut State Board of Education. Their bid amounted to $60,077. The Daly firm recently received the contract for the heating in the new $100,000 Parochial School on Wolcott Street, Waterbury, for the Sacred Heart R. C. Parish; and also the plumbing and heating in the new $50,000 business building for Dr. Harold J. Root, in Waterbury. They are also busy on several sprinkler jobs throughout the state, together with a number of large remodeling contracts, and altogether report a very brisk year so far, and look for it to continue.

ANNOUNCE $5,000,000 OFFICE BUILDING PROJECT FOR PHILADELPHIA.

With the announcement of the projected erection at the southeast corner of Fifteenth and Chestnut Streets, in Philadelphia, of a twenty-four-story, $5,000,000 office building, the tallest in that city, the general construction boom which that city is experiencing seems to have reached a pinnacle, and a state of prosperity which promises to hearten the plumbing and heating trades independent of whether the Exposition plans go through or go under. The corner where the new building will be located was bought some months ago by a syndicate for about $31,250 a front foot.

Work on the new building will not be started until early in 1923, according to the announcement of Ritter & Shay, the architects. The building will be of limestone and terra cotta, steel skeleton, 24 stories and roof, with a luncheon club on the roof. Local supply men profess to be quite well satisfied that this big new job is to wait until spring, as they find difficulty in effecting an orderly disposition of business in hand, and bids on the basis of the current situation would have to take into account market elements still undetermined.

Among new building projects at the shore in which local contractors and supply men will be interested are reported the new Bell Telephone building at Atlantic City, a six-story affair with provision for extension; the new four-story building under erection by the Hurley-Jones Company; an eight-story addition to the Chelsea Hotel; a twelve-room school

C. R. Fowler, Ed. Giles, W. H. Shelmerdine and H. Kleinman at a recent Tournament of the Philadelphia Heating and Ventilating Golf Association.

Reliable Sanitary Floor Drains

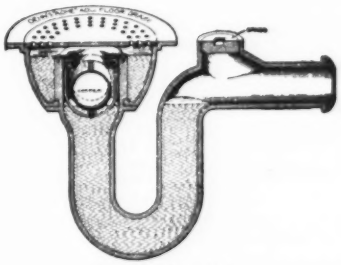


Fig. 7—Patented

Dehn's *"AcmE"* Deep Seal Continuous Pipe Trap Floor Drain with Automatic Back Water Valve.

Approved and recommended by all Departments of Health and Sanitary Engineers. These have stood the test for many years.

Beware of the Infringer and Imitator with his contraptions.

We manufacture a full and complete line of Floor Drains for every type of installation.

Catalog free upon request

Compound Injector & Specialty Co.

Established 1897

Originators, Designers and Sole Manufacturers of

DEHNSANICARD THE QUALITY GOODS

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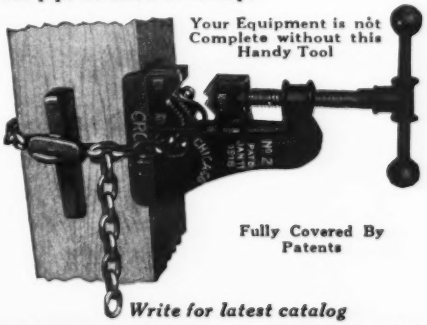
CROWN

Post Pipe Vise

The CROWN Post Vise works efficiently everywhere—in the shop or outside. Attaches readily to any solid object, round or square—tree, post, telephone pole, etc. Holds pipe firmly. Will not crush pipe or allow it to slip.



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CROWN DIE & TOOL CO.

555 West Monroe Street CHICAGO

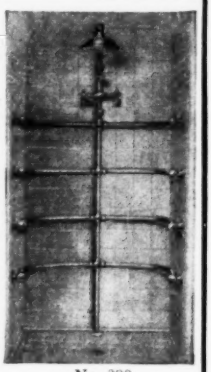
Makers of CROWN "Labor-Saving" Pipe Tools and "Easy-Cutting" Pipe Dies

A Popular Hudson Fixture

The HUDSON Exposed Combination Shower and Needle Bath for Recess

Catalog No. 21 shows this as well as our complete line of Showers and Bath Fixtures. Write for it.

Hudson Brass Works
16 Nassau St. Brooklyn, N. Y.



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A LEAD Product *for* Every LEAD Purpose

Lead Pipe—Lead Wool
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THE EAGLE-PICHER LEAD CO.
JOPLIN CINCINNATI CHICAGO

MONARCH
AUTOMATIC ELECTRIC WATER SYSTEMS

$117.00
Plus Freight from Dayton

MONARCH Water Systems are medium priced—some are higher, perhaps some are lower, but none are better at any price.

The Monarch line of deep and shallow well pumps covers every water supply requirement. Write for details.

The Monarch Engineering Co.
250 E. First Street Dayton, Ohio
Export Office:
O. P. Brett, Mgr., 136 Water Street, New York

MONARCH Wall Unit

BLOCH BATH FIXTURE

The sanitary fixture. No inner overflow tube to gather dirt or germs. No closet necessary in back of fixture.

All repairs made from face of fixture. Installed in one-fifth the time of any other fixture. Can be installed on any built-in bath. Costs one-half that of any other fixture.

Leon Bloch Brass Co.
28-30 West 22nd St. New York City

building at Pleasantville; a new postoffice building at Absecon. Bungalow construction continues active and predictions are that it will so continue until snow, barring a long setback through the strike situation.

UNSEWERED HOMES DECLARED MENACE TO PUBLIC HEALTH.

Philadelphia Health Director Starts Campaign for Better Sanitation.

Philadelphia plumbing and sanitation experts see immediate significance in a campaign inaugurated by Director Furbush, of the Department of Public Health, to clean up bad housing conditions quite prevalent in certain localities in that city. "There still exist more than 13,000 houses in Philadelphia not connected with sewers," the Director states. "Of this number 2,078 are on sewered streets. Each such house is a menace to the health of the community.

"The records of the Division of Housing and Sanitation indicate that a large number of these undrained houses are controlled by trust companies for estates and agents for owners who are absent from the city, and are reluctant to make repairs pending the sale of the property. We appeal to this group on the basis of civic pride and decency, and in the interest of public health.

"We are dead in earnest about this matter. Each week we have a number of these cases in the courts.

"The Department is concentrating its efforts towards the elimination of all drainage not connected with sewers on sewered streets by January 1, 1923. The Division of Housing and Sanitation has already succeeded in reducing the number of such places from 3,355 on March 1 to 2,078 at the beginning of this month.

"We urge the public to use its influence to have sewers installed where they do not already exist."

Mr. Furbush points out that very unwholesome conditions were attendant upon and followed the Centennial Exposition in 1876, and that everything possible must be done to provide a complete and freely irrigated sewage system for Philadelphia, if the proposed Sesqui-Centennial is not to see a repetition of the typhoid and malaria epidemics of the first big exposition.

NEW YORK HEALTH BOARD TO ENFORCE SANITARY REQUIREMENTS IN SMALL INDUSTRIAL PLANTS.

Necessity for Better Toilet and Washing Facilities Spells Opportunities for Plumbing Trade.

A campaign which promises to produce considerable work for local master plumbers is being inaugurated by the Division of Industrial Hygiene of the New York Board of Health. It has for its purpose the bringing about of proper sanitary conditions in the small workshops of New York. According to Dr. S. Dana Hubbard, Superintendent of the Division of Industrial Hygiene, recent investigations made by his inspectors have brought to light the fact that there are thousands of small factories throughout the city, particularly in the men's apparel industries, in which the most deplorable unsanitary conditions prevail. "The average small shop," he declared, "violates all the laws of God or man," in this respect, and he is determined to bring about a prompt reform.

The industrial hygiene department, Dr. Hubbard said, has 25 inspectors and 10 doctors. The inspectors visit from 7,000 to 10,000 plants a year, inspecting conditions and giving shop talks to employes on health and sanitation. In some large plants where careful records are kept, the department's suggestions and lectures to the workers have shown remarkable results in decreasing absences because of sickness, and

in other ways have resulted in increased efficiency. These results are cited by the inspectors in their visits to other shops, the policy of the department being to bring about changes through persuasion rather than force.

The inspection record for the apparel industries shows that during 1921 2,359 inspections and 7,869 re-inspections were made. In only 166 cases was there no cause for action, but in 2,268 defects were "abated through personal effort." Some of the sanitary defects were:

Unclean toilets	414
Inadequate number of toilets	57
Defective toilets, plumbing	115
Inadequate ventilation	153
Unclean and inadequate washing facilities	288

The small shop, while it is the greatest violator of the sanitary code, should not be eliminated, said Dr. Hubbard, who believes that it serves "a useful part in the field of competition." Through the education and co-operation of employers and workers, however, he says, the unsanitary features must be done away with.

TO FURNISH APPRENTICES FOR ALL TRADES.

New York Committee of Builders Congress to Draw Up Inclusive Plan for Entire Building Industry.

The Apprenticeship Committee of Building Industries of the Greater New York District, a subsidiary organization of the New York Building Congress, held a meeting on August 4th and elected new officers.

The Building Trades' Congress, which has been operating for about six months, has just issued an appeal to the allied building trades for a fund of $50,000 to enable it to develop its plans for a system of apprenticeship for each of these trades and for other general purposes of the Council.

The appeal is supported in a letter sent out last week and signed by the executives of the Congress. The letter emphasizes the fact that a fund of $50,000 is not an excessively large amount for a $400,000,000 business to provide, and it also says in part:

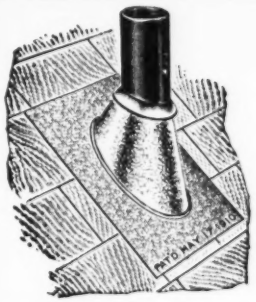
"The industry is paying high costs now on account of labor shortage. Unless something is done, it will pay more and more without limit. Our labor supply is only about 60 per cent of that available before the war, while our building requirements are very much greater.

"The building program in New York City is unprecedented. From January to May, inclusive, building permits were issued, valued at $258,083,693, while in an average 12 months from 1913 to 1915 they amounted to only $155,000,000. As a result the demand for building is looked upon as basic in setting our industrial machinery in motion to help retrieve the nation's building.

Scarcity of skilled mechanics injuring business.

"It is universally recognized that the business situation is being injured by the scarcity of skilled mechanics. This is especially true in the building trades. The situation will not right itself, as it is due to an actual shortage of skilled labor. We must get away from the bonus and premium system. The New York Building Congress is solving the problem by an apprenticeship plan, which has been approved by both employers' associations and labor unions. The plan means not only a supply of men to meet the present emergency but also the establishment of a permanent source which will fill the labor ranks in the future.

"Under this plan thousands of men will not only be trained for mechanics, but their entrance into the trade will be guaranteed by the agreement made with the trade unions. It will, however, require a great deal of money to train these men, and every one interested in the prosperity of this city and of the country, must do his share to help the New York Building Congress to carry out this program during the next five years.



Don't Be Content

With Ordinary Roof Flashings

Specify and Use the Reliable

"SIMPLEX"

Made in All Lead—Copper—Galvanized Iron

Every Flashing Adjustable
Every Flashing Perfect

Manufactured only by

Simplex Mfg. Company, 213 W. Austin Ave., Chicago

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"Mon-Seal"

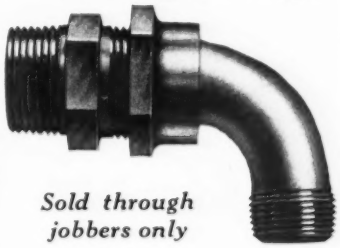
CHICAGO POTTERY CO.

Specializes
in the manufacture of
Closet Bowls and Tanks
of "Whitest Vitrified China"

1924-40 CLYBOURN AVENUE
CHICAGO

Boiler Couplings

A heavier, more substantial coupling at the same price



We also manufacture Bath Cocks, Basin Cocks, Basin Supplies, Wash Tray Bibbs, Boiler Drain Cocks, Sink Bibbs.

Sold through jobbers only

New England Brass Mfg. Co., Danbury, Conn.

RIVERSIDE Refrigerator Drains

Made of heavy cast iron and galvanized by the Hot Drip process. Positively rust-proof.

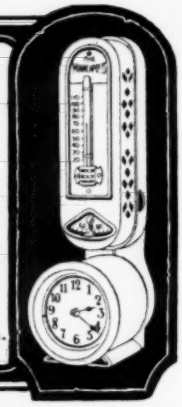
Has removable strainer which serves as cap for trap and seals against sewer gas.

Tapped for 1¼-in. or 1½-in. iron pipe.

RT
30-31
7¾-in. diam.

Write for Catalog 9 featuring entire line.

RIVERSIDE FOUNDRY & GALVANIZING CO.
500 Harrison Street
KALAMAZOO, MICHIGAN



Extra Profit on Each Job

Automatic control of temperature makes any heating plant more satisfactory. Its advantages in comfort, convenience, health and economy are readily apparent.

These advantages make it just as easy, often much easier, to sell the job complete, including the Minneapolis Heat Regulator. For any type of heating system, using any kind of fuel.

Endorsed by home-owners all over America. Nationally advertised. Write for complete sales plan.

MINNEAPOLIS HEAT REGULATOR CO.
2801 Fourth Ave., South, Minneapolis, Minn.

National Water Lifts

Represent fourteen years' experience in pump making. They embody the most modern, up-to-date ideas.

Some special features—

Absolutely noiseless.
Simplicity of working parts.
All accessible from outside.
Valves can be removed by simply taking off caps.
Only one set of stuffing boxes, packed from outside.

GUARANTEED.

If your jobber cannot supply you, write us direct.

National Water Lift Co. 1621 Portage Street Kalamazoo, Mich.

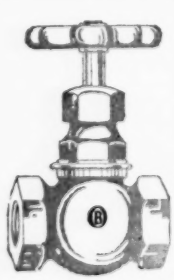
NO ROOF IS SUPERIOR TO ITS FLANGE

Therefore, some PLUMBER is the father of every leaky roof.

The Bullard Roof Flange

is acknowledged as the only PERFECT FLANGE by busy men who have made satisfying installations.

THE BULLARD SPECIALTY CO., Tiffin, Ohio



Buy O-B Quality First Valves From Your Supply House

The Ohio Brass Company
Mansfield, Ohio

50 Church St. New York City — 343 S. Dearborn St. Chicago — 710 Witherspoon Bldg. Philadelphia

WM. P. HORN CO., *Pacific Coast Agents*
Los Angeles — Seattle — Portland — San Francisco

"Without this plan there is no way of developing skilled workmen. Our former supply of mechanics from European countries has been more or less cut off. Private and so-called trade schools do not meet the situation. There are plenty of men willing to become mechanics, but unassisted they can do nothing. The building industry must marshal its forces and meet the emergency; and that is why this fund is sought."

Plans System for Each Trade.

The Apprenticeship Committee, referred to in previous paragraphs, plans to draw up a system of apprenticeship for each of the allied building trades, to be endorsed by both employers' associations and labor unions concerned. A start has already been made with the woodworking trade, which is the largest unit in the building and allied trades, and the agreement, which has been reached, is embodied in a booklet issued recently by the Council.

While nothing has yet been done towards the preparation of a similar system of apprenticeship for the plumbing and and the steam fitting trades, it may be noted that they are represented on the General Committee of the Building Trades Council by W. H. McKiever, heating contractor, and J. L. Murphy, plumbing contractor, both well-known figures in Greater New York.

"We have not yet taken up the plumbing and heating trades," said Frank L. Glynn, educational advisor of the Council; "But we shall come to them in due time. We are taking up first the trades that employ the largest number and require the most apprentices, but I realize there is as serious a shortage of apprentices in the plumbing trade as in others, and we hope to devise a remedy that will be both effective and permanent."

NOVEL USE OF BATH A DAY EMBLEM.

A small reproduction of the Bath A Day button, in the well-known colors, orange and black, can be found on the business cards of W. C. Hamlett & Son, plumbing and heating contractors at Ronceverte, W. Va. This novel use of the slogan cut makes a very attractive and colorful addition to the conventional card.

LONDON, ONTARIO, SANITARY INSPECTOR TO CONFER REGULARLY WITH PLUMBERS.

One of the chief developments of interest among plumbers in London, Ontario, is the recent announcement of Plumbing Inspector James E. Young that he is making plans to take up with the men in the trade very shortly the question of holding regular meetings to discuss practical problems which are met with in the course of inspection work.

Discussing the matter with a "Domestic Engineering" representative, Mr. Young said: "There are many matters coming up all the time that are of real interest and value to the men who are making installations. In the course of my work I run across a great many things that could be discussed to our mutual advantage. Some men have better ways of doing a job than others, and by discussing points in connection with different pieces of work we could all profit. I would like to co-operate with the trade in every way possible, and I feel such meetings would be to our mutual advantage."

It is some time since any such effort has been made in London and vicinity. Discussing the matter, many sanitary engineers point out that such meetings should be valuable. The date of the first general meeting is expected shortly. There are more men and more shops in the city now than ever before and with a busy year's work in hand, more problems than ever are springing up, and such conferences will no doubt help solve them. A picnic may be arranged shortly as a start off in the formation of an organization to handle such meetings.

CANADIAN HEATING ENGINEERS DEVISE PLANS TO OVERCOME COAL SHORTAGE.

As a result of the threatened coal shortage, made more serious by the embargo placed on coal shipments to Canada from the United States, some innovations in heating practice are now being planned in order to provide heat. One prominent Toronto architect is working out a plan for an apartment house owner by which he will do away with coal and ash shoveling and janitor service, thus enabling him to make a reduction in rents and making the tenant look after his own heat. The plan is to install in each room a water radiator heated by gas. This plan it is held, would conserve heat in that only the rooms in use would be heated, whereas now many rooms unused are heated. Such variation in practice makes it hard for the janitor to satisfactorily heat all apartments and the new plan would overcome the difficulty. The tenants in a new eight-apartment suite being erected in one Ontario city will heat their premises by this means and will pay for all gas used. The question of using electric water heating devices is also being experimented with.

Central heating has also come in for more consideration since the coal shortage loomed up. One prominent Diocese in London is installing a central heating plant to look after the cathedral, parish hall, public school and seminary. Such a plant would allow the discharge of two or three stokers and be an economy in the use of fuel. The question of central heating for business blocks is also being considered in a number of Ontario cities.

IN THE NEW YORK SUPPLY MARKET.

(Continued from Page 293.)

slowly to the better business that attends this line in the fall. At present there is not much activity, many home builders, as previously noted, postponing this part of their expenditures until it is really needed. Jobbers are alive to the importance of being well stocked up in readiness for the accelerated demand that will come along. Last year some of them were caught napping and their more wide-awake colleagues reaped the harvest of their foresightedness. It is anticipated that the demand this fall will be greater than it was in 1921.

"There is plenty of business being offered," said George H. Burford, of McMann & Taylor Co. "Our main trouble just now is in the slowness of shipments from the mills, owing to the transportation tie-up. The situation isn't serious but we are a little nervous as to how long the present condition will last. If it is prolonged there may be a shortage in stocks among the jobbers, and that will inconvenience all concerned. Prices are firm in accordance with an active demand, and apart from the railroad strike the situation is quite satisfactory."

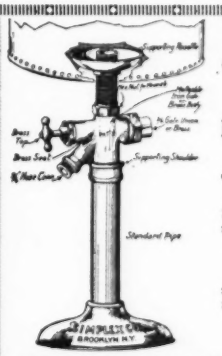
"Certain lines of brass valves and fittings are up slightly, and steel pipe seems to be definitely nearer to that long-anticipated advance," said J. A. Phillips, manager of the R. J. Donovan Co., of New York, Inc. "But I wouldn't like to say that it will move up in the near future. The mill men are afraid of being misunderstood, if they advance prices in the middle of the railroad strike, although some of them are freely predicting that that is what will happen."

"The call for enameled goods continues active," said F. W. Starke, of the J. L. Mott Iron Works. "There may be a slight falling-off this week, but the volume of business we are handling is greater than in a normal year. In fact, we have more business than we can handle. We hear of a slight improvement in better-class building construction and also in office buildings and this should react presently on the demand for the better grades of enameled ware."

H. S. Seifert has opened a plumbing business at 546 D Street, Fresno, Calif.

ECONOMY EFFICIENCY

This is a
Pierce Down Draft, Magazine Feed, Smoke Consuming, Heating Boiler
Saves Fuel Labor
Manufactured only by
Pierce, Butler & Pierce Manufacturing Corp.
Brooklyn Boston Worcester NEW YORK Detroit Syracuse Newark Philadelphia Baltimore Washington



Simplex Boiler Stand
Made in Malleable Iron or Brass

Stronger, gives larger circulating opening than cast iron stands.

Will carry twenty sizes of boilers. Supporting arms easily attached to all sizes.

Adjustable to any height.

The SIMPLEX costs less in labor, saves leaks—no place for dust or vermin to collect.

Write for Circulars

SIMPLEX BOILER STAND CO. 240 Hall Street Brooklyn, N. Y.

THE OWNER *WON'T PAY*—
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The only water system you can afford to sell is the system that is so well designed and built that "free service" is not a tax on your profits.

Write for this free booklet describing Paul Water Systems and water system installation and you will understand why Paul dealers have practically eliminated profit-killing "free service" from their water-system business.

Send for your copy of this book today!

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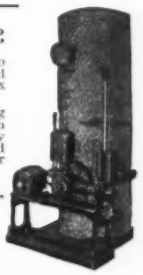
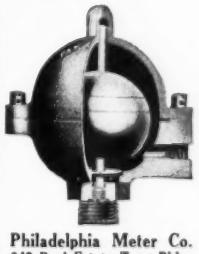
Service Offices, carrying systems in stock: New York, Philadelphia, Boston, Minneapolis, Portland, Ore., Kansas City, Mo. Also service offices at Buffalo, Providence, R. I., Pontiac, Mich., Peoria, Ill., Madison, Wis., Wilson, N. C., Omaha, Neb.



There is a Paul Water System to meet all requirements of any capacity, pumping from shallow or deep well, cistern or spring.

WATER PAUL SYSTEMS

Red Top Relief Valve



A safety appliance you should know

PHILADELPHIA METER CO Send me complete information about *Red Top Relief Valves.*

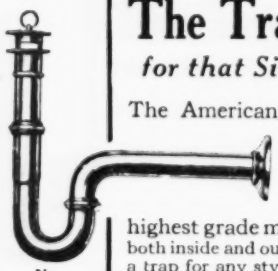
Name .....
Address .....
City & State .....
Jobber's Name .....

Philadelphia Meter Co.
942 Real Estate Trust Bldg.
PHILADELPHIA - PA.

ZECO

A vitreous china tank with a set of real fittings

ZWERMANN COMPANY
Robinson, Illinois



No. 2300

The Trap You Want
for that Sink or Lavatory Job

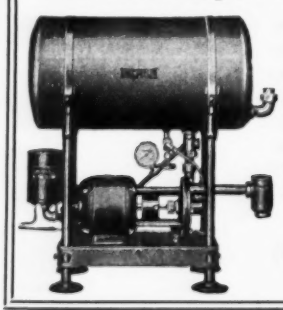
The American N. P. Adjustable Bent Tube Plain "P" Trap is one you can install and forget about.

It is strongly built of highest grade materials, smoothly finished both inside and out. The American Line includes a trap for any style sink or lavatory.

Stocked by jobbers everywhere

AMERICAN SANITARY MANUFACTURING CO.
Abingdon, Illinois
Manufacturers of Fine N. P. Brass Specialties

30 Years of Service
Without Repairs or Adjustments



Decatur Water Supply System under actual service conditions has now been running for **9 months** continuously and is still performing 24 hour a day service without any decrease in volume, pressure or efficiency. Any Decatur Water System will give

A Lifetime of Service

DECATUR PUMP CO.
Decatur, Illinois

FOR lasting quality and true capacity use "Koven" Pure Iron Double Row Riveted, Galvanized Range Boilers, or Naco Galvanized Range Boilers made of open hearth steel. These boilers may be bought of jobbers everywhere.

L. O. KOVEN & BRO.
154 Ogden Ave., - - Jersey City, N. J.

IN THE PHILADELPHIA SUPPLY MARKET.

Philadelphia, August 5—The general feeling of the supply trades here is one of growing apprehension for the expected rush of orders for finishing goods in September, mingled with satisfaction over the optimism of business analysts who see constantly increasing reason for confidence in a prosperous season next year. Soil pipe is up another five points, practically on the heels of a two-point increase in steel pipe, as anticipated in a previous letter. Wrought iron pipe has all the earmarks of "an early riser," and brass goods, also sanitary porcelain and vitreous ware give promise of susceptibility to speculative increases by mid-September.

Mr. Fife, of the Keystone Supply & Mfg. Co., outlines the situation practically as follows: "Soil pipe is practically out of supply, and only occasional firms in Philadelphia have any quantity. Steel pipe is extremely hard to get, due to the coal and car shortage.

"As to the potteries, we have received advances from only one small factory, but while these covered practically everything in its smaller wares, these raises were not found elsewhere. I understand that the orders being received by the main group of potteries are running from forty to fifty per cent ahead of production capacity.

"If we were to attempt to fill all our orders now we would exhaust our stocks, but by filling gradually, and using up our warehouse supplies, we hope to be in fair shape when the acute demand comes in September. The most popular items now are combination sinks and drains, pedestal lavatories and built-in bathtubs.

"Before the war this type of installation belonged largely to the better high-priced houses and to hotels. Now contractors, in order to appeal to the women inspecting their new houses, find they must have equipment of this kind, just as some of them are even putting in radio equipment and 'breakfast nooks.'

Conditions in the local trade since August 1 have suffered a slight lull, as little new contract work is being let. The pending reorganization of the Sesqui-Centennial Fair has put a temporary quietus on speculative building based on that rather remote event, although confidence among the members of various building trades seems to cling firmly to the prospect of a successful fair since Franklin D. Olier, former head of the American Legion, has accepted the nominal headship.

JERSEY CITY OUTING ANNOUNCED FOR SEPTEMBER.

The annual outing and games of the Master Plumbers' Association, of Jersey City, N. J., will take place at Doerr's Union Park, Maplewood, N. J., on Saturday, September 9th, according to information from the committee that will make all arrangements for the event. The committee consists of: James T. Brennan, Joseph A. Sprouls, John J. Corcoran, Valentine Ringle, Henry A. Cohendet, John T. Edge, Morris Fellerman and Alexander G. McIntyre.

WASHINGTON MASTER PLUMBERS TO HOLD OUTING AT CHAPEL POINT, MD.

The Master Plumbers' Association of Washington, D. C., will hold its annual outing at Chapel Point, Md., on Wednesday, August 16th. The trip will be made by automobiles and the party will assemble at Thirteenth and K streets, N. W., in Washington at 8:30 a. m.

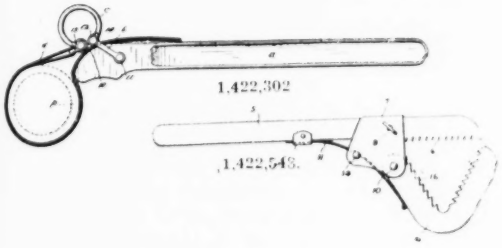
Allentown Association to Picnic on Aug. 17th.

The Master Plumbers' Association, of Allentown, Pa., will hold its annual outing on August 17th at J. Roth's Bungalow, near that city.

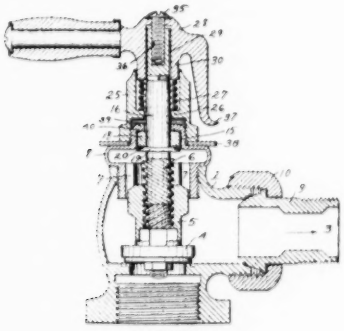
Patents

Heating Department.

1,422,302. Pipe Wrench. Howard Parker, Berlin, N. H., assignor to Brown Company, Berlin, N. H. A pipe wrench including a handle and a flexible band secured at one end and detachably connected at its other end to said handle, said band having an effective gripping action throughout its engagement with the pipe and including extensible means permitting of extension of said band to prevent injury to the pipe when the force applied is excessive.



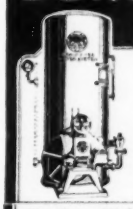
1,422,548. Pipe Wrench. Wenzel Dvorak, Fernie, British Columbia, Canada. A pipe wrench having a handle member, there being notched configurations on the inner end of the said handle member, a bracket member slidably engaged with the said handle member, a V-shaped jaw member having notched configurations on the inner edges thereof, one terminal of the said V-shaped jaw member pivotally connected to the said bracket member, a spring affixed intermediate its ends to the said bracket member, one terminal of the said spring substantially secured to the said handle member, the opposite terminal of the said spring bearing against the said body member and means securing the said slidable bracket member in any desired position.



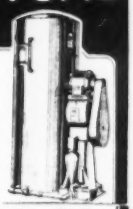
1,422,980

1,422,980. Valve Mechanism. Frank L. Hutchinson, Milwaukee, Wis., assignor to Sterling Engineering Co., Milwaukee, Wis. In a valve mechanism, the combination with a valve casing and a valve therein, a valve operating stem projecting through the casing and having its inner end operatively connected with the valve, a casing extension having an annular packing member through which the stem passes, an annular projection on the stem adapted to seat upwardly against said packing, a handle, a spring coiled about the stem with one end supported from the casing extension and the other end bearing against the handle, said stem being socketed in the handle and connected therewith by an adjusting screw

"DURO" WATER SYSTEMS
EQUAL TO CITY WATER SERVICE


Shallow Well System

The most complete line of Shallow and Deep Well Pumps on the Market. Either Electric, Gasoline Engine or Belt Driven. There is a "DURO" for every need. *Prices reduced again.* Write for Price Sheet "A", effective July 15, 1922, and our catalog. Can be bought on easy terms


Deep Well System

Manufactured by
The Duro Pump & Manufacturing Co.
DAYTON, OHIO

Signs Point to a Big Year

No. 10 Steel

Stock up with "B & C" Plates and be ready for the rush.
30 Years of Quality and Service
Ready to serve you.

THE BEATON & CORBIN MFG. CO.
SOUTHINGTON, CONN.
The Old Original Company

The
WILEY SAFETY VENT VAPOR REGULATOR
Provides the best
LIFE AND ACCIDENT INSURANCE for your vapor heating boiler
A peerless quality product manufactured and sold exclusively by
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ACME DETROIT Drinking Fountain

Adjustable to All Pressures
A strictly sanitary fixture suitable for use in all classes of buildings. The price is right, too.
We make a line of high grade
Basin Cocks
Sink Bibbs
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Solder Nipples
If your jobber hasn't our goods in stock write us, giving his name.
Acme Brass Works, Detroit, Mich.
Eastern Representatives: Kessel & Muller, New York
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Gerstein
Cistern and Riveted Pressure Boilers
can be described in one word—

Everlasting

They not only *last* but give continuous, satisfactory service.
Made in any size, pressure or capacity desired.

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Gerstein Bros. & Cooper
Coppersmiths
1-3 W. Third Street So. Boston, Mass.

"LEONARD" Thermostatic
Water Mixing Valve

Provides real safety in bathing

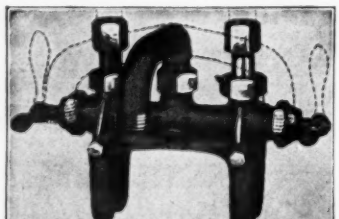
Unequal pressures in cold and hot water supplies to valve do not affect the accuracy of temperature control. Only mixing valve of its size that takes care of this emergency.

Sold by all jobbers

LEONARD-ROOKE CO. Providence, R. I.

Raymond's Lead Roof Flanges
Manufactured by
Raymond Lead Works
735 S. Washtenaw Ave. Chicago
are the **Best**
SIMPLICITY OF DESIGN—EFFICIENCY IN SERVICE
—RECOMMEND THEM
Use No Other
If your JOBBER does not handle them send your order to us direct

Prominent Features of
E-Z LAUNDRY TRAY FAUCETS are:



Pat. No. 1,393,193

The E-Z requires about twenty minutes for installation.

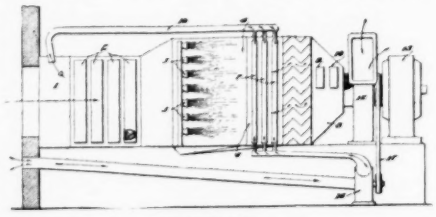
No extra material. No steam nuisance. Water can be mixed to right temperature before going into the tub.

Write for details

The E-Z Manufacturing Co. 714 Builders' Exchange Minneapolis, Minn.

passing through the handle and engaged in an axially disposed socket in the stem, whereby the handle is adjustable longitudinally of the stem.

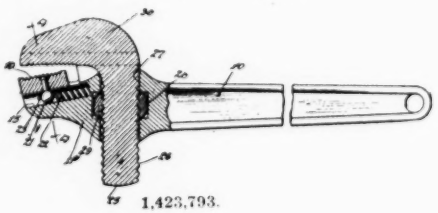
1,422,839. Method of Humidifying Air. Philippe de Clamecy, Boston, Mass., assignor to B. F. Sturtevant Company, Boston, Mass. The method of humidifying air which consists in heating the air to a temperature in excess of the temperature at which it is to be delivered, spraying water into the heated air, projecting the heated air against a separating surface to precipitate a portion of the water held in suspension by the air, maintaining the separating surface



1,422,839.

cool by means of a current of air which first cools the separating surface and then becomes a part of the supply of air to be heated, and allowing the remaining portion of the water held in suspension by the air and not precipitated on the separating surface to be vaporized to give the desired humidity at the desired temperature.

1,423,793. Pipe Wrench. Paul G. Green, Marshall, Mich. In a wrench having a handle and a pair of gripping jaws extending approximately in longitudinal direction of said handle and with their gripping faces at a slight inclination to each other; one of said jaws being rigidly connected with



1,423,793.

said handle and the other jaw having transverse adjustment therewith, an element mounted to slide upon one of said jaws in parallel direction with the gripping side thereof and provided with a gripping surface, a cylindrical recess provided in said last named jaw, a compression spring lodged in said recess, a head on said element fitting said recess and abutting against said spring.

Plumbing Department.

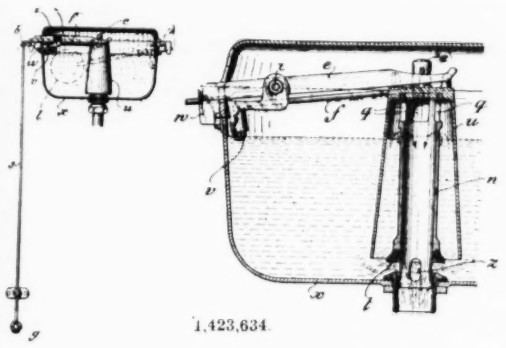
1,422,357. Soldering Iron. Harry F. Hammond, South Shaftsbury, Vt., assignor of one-half to John Alfred Davis, Dover, Vt. A device of the character stated, comprising a soldering iron, a shank pivotally connected to the soldering iron, a spring pressed sleeve on the shank, and a head on the sleeve having a flat outer surface adapted to engage the end of the iron and support the same in alignment with the

1,422,357.

shank, and said head having notches in its outer face adapted to receive the corners of the iron and support the iron at an angle to the shank.

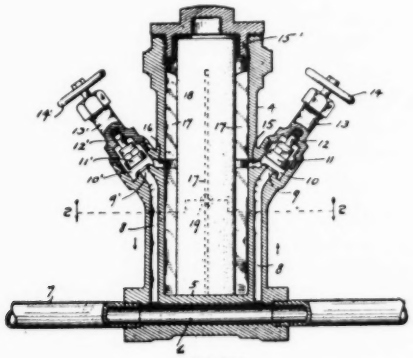
1,423,634. Flushing Apparatus. Leo Solheid, Dusseldorf, Germany. In a flushing apparatus of the character set forth, in combination with a siphon bell including a central stand-

pipe presenting top and bottom ports, and means for operating said siphon bell, an aerating device for at will preventing air rarefaction within said siphon bell, and said aerating device adapted to be operated by a movement of said siphon bell operating means different from that for operating said siphon bell.



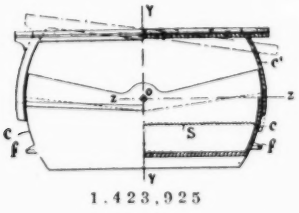
1,423,634.

1,423,657. Water Softener. Charles B. Haines, Indianapolis, Ind. The combination with a water supply pipe, of a receptacle containing a substance in stick form to be acted on by flowing water, longitudinal ribs on the inner wall of the receptacle to space the stick from the said walls, a water passage from the supply pipe to a space in the receptacle, another water passage from another space in the receptacle to the water supply pipe, and valve means in each of said water passages to control the flow of water therethrough.



1,423,657.

1,423,925. Receiver and Stench Trap for Sewers. Jeanty Etchebehere, Biarritz, Basses-Pyrenees, France. In a sewer mouth, a basin, a longitudinal partition in said basin, ears on the outer face of said basin adapted to be engaged in the masonry, a cover, also provided with a partition, said partitions being secured together by means of a bolt, and a perforated plate covering the sewer top.



1,423,925

White Plains, N. Y.—J. S. Leahy has opened a plumbing and heating establishment at 47 Martine Avenue.

"Thrift" House Heating Range

Heats 8-room house by hot water. Gives separate domestic hot water. Cooks and bakes. No extra coal. 350 sq. ft. of radiation. 70° in zero weather guaranteed.

Write for details. Exclusive agents wanted

Zimmerman Stove Heater Corp.
Jamaica, N. Y.

Deegan's Thread-Joint Seal

Holds the pressure and does not harden.

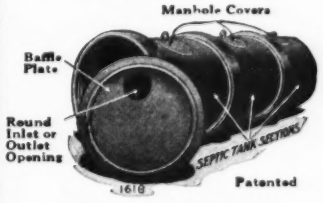
WHY is it more economical and satisfactory to use than lead?

BECAUSE, unlike lead, it will not harden in the joint; it is clean to handle; it will not deteriorate when left open; it will prevent rust; and a pound of T-J-S is equal to three pounds of lead.

If your supply house does not carry Deegan's Thread Joint-Seal, send us his name and we will see that you are supplied.

Chard & Howe 256 Front Street NEW YORK CITY

A Material You Prefer to Install



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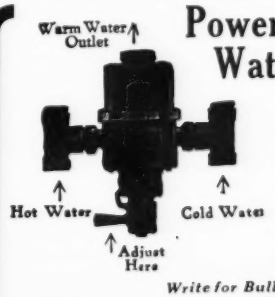

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